MAY 2 7 2003 PE

Ladner7L.ST25.txt SEQUENCE LISTING

LADNER, Charles C. GUTERMAN, Sonia K. ROBERTS, Bruce L. MARKLAND, William MEY, Arthur C. RENT, Rachel B. +(120) DIRECTED EVOLUTION OF NOVEL BINDING PROTEINS -:11300 LADNER=7L +:1400 09/896,005 <1410 2001-06-29 +:150:- 08/415,923 +:151:- 1995-03-04 +:150: 08/009,319 +(151) 1393+01-26 +350.+ 07/664,969 +350.+ 1991-03+01 +:150.+ 08/393,776 <151.- 1997-18-18</pre> H160.- U74 1700 Patentin version 3.2 +1210.+ 1 +1211.+ 1.6 1.1.+ PRT 1313 · Artificial -1220cm #223 - synthetic - zinc finger consensus < 0.000 +</p> Him. 19 misc_feature Him. 19 (2)...(2) Him. Maa can be any naturally occurring amino acid H2200+
H2210+ misc_feature
H2220+ Mass can be any naturally occurring amino acid coll()
clul() misc_feature
clul() (7)..(9)
clul() Xaa can be any naturally occurring amino acid 112.00 %221 * miss_feature
%232 * ,11)..(15) Himle Kaa can be any naturally occurring amino acid http://www.peature.com/page/feature

+222... (17)...(16)

Page 1

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Ladner7L.ST25.txt
   +323> Maa can be any naturally occurring amino acid
   · 2.30 ·
   CLASS Mass can be any naturally occurring amino acid
   · 220 -
   .... masc_feature
.... (28)
   saline Maa can be any naturally occurring amino acid
   Para Area 1
   Fre Maa Cys Maa Maa Cys Maa Maa Maa Phe Maa Maa Maa Maa Maa Leu
  Mga Maa His Maa Maa Maa His Maa Maa Maa Maa
  * Dlo * D
* Dl1 * D*
* Dl0 * FFT
* Dl1 * Artificial
 4.2240 +
 +::23 - synthetic - zinc finger consensus
 7.020 F
 + h.1 - misc_feature
 +21. + (2). \overline{C}(2) = 22.5 + 25a can be any naturally occurring amino acid
 1120
% 11 / misc_feature
% 131 / (4)..(5)
% 135 / Maa can be any naturally occurring amino acid
% con.
% co
the to Maa can be any naturally occurring amino acid
4.1.25 A
.... risc feature
+1.11 + (17)^{\top} \cdot (17)

    No Year can be any naturally occurring amino acid

+2.00 +
+2.1 + risc_feature
+2.21 + 2.0)..(22)
+2.11 + Xaa can be any naturally occurring amino acid
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Ladner7L.ST25.txt
+223> Maa can be any naturally occurring amino acid
4*10 → 2
 Tyr Maa Cys Maa Maa Cys Maa Maa Maa Phe Maa Maa Maa Maa Maa Leu
                                          10
Maa Maa His Maa Maa Kaa His Maa Maa Maa Maa Maa
+110 + 3
+211 + 39
+311 + PFT
+313 + Artificial
< 320 ×
\pm 223 \pm 1 synthetic - zinc finger consensus
Public
Public misc_feature
Public (2)..(2)
Public Maa can be any naturally occurring amino acid
1000
dull    musc_feature
+1.2+ (4).T(6) +120+ Maa can be any naturally occurring amino acid
e = 2 \cdot 1 \cdot e
First Maa can be any naturally occurring amino acid
rcco.
221     risc_feature
rcco. (13)...(19)
Hala can be any naturally occurring amino acid
1.120
coll risc feature
coll (11)...23)
coll Man dan ke any naturally occurring amino acid
8 228 A
'Lil' misc_feature
+...2+(....) \overline{...} (29)
+22^{3}+2\Sigma_{\text{def}} can be any naturally occurring amino acid
+460 + 3
Fr.:: Naa Cys Xaa Xaa Xaa Cys Xaa Naa Xaa Phe Xaa Xaa Xaa Xaa Xaa
Leu Maa Maa His Maa Maa Maa His Maa Maa Maa Maa Maa
                                     <u> 2</u>5
             20
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Page 3

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+210> 4
+211+ 29
+212+ PET
 .1: Artificial
. .:2:. .
..?. synthetic - zinc finger consensus
 Jull - misc_feature
Fig. (1). \overline{\Gamma}(2) Fig. (2) As a can be any naturally occurring amino acid
2000a
2001-2
        misc feature
< 1.122 --</pre>
         (4) .. (6)
+227 - Waa can be any naturally occurring amino acid
8 225 F
- 121+ mrsd_feature
- 121+ %a)..(10)
+223 - Maa can be any naturally occurring amino acid
\in \mathbb{I}_{+}\mathbb{D}[\Gamma_{n-k}]
-123 - Maa can be any naturally occurring amino acid
- 220 -
| MMT | misc feature
| MMT | (18)...19.
| MMT | Kwa can be any naturally | sourring amino acid
. 1277
\cdot [2] \cdot nusc_feature
. . .22 -
          . 1) . . (23)
 Till: Maa can be any naturally occurring amine acid
+13::-
+13::-
+13::-
+2::-
+2::-
+2::-
+3::-
-3::-
Xaa can be any naturally occurring amino acid
8-455 A 4
Tyr Maa Cys Maa Maa Maa Cys Maa Maa Maa Phe Maa Maa Maa Maa Maa
                                              10
Iwu Maa Maa His Kaa Xaa Xaa His Maa Xaa Xaa Kaa Maa
               20
                                        25
+.3C+
+.2C+ symthetic - zinc finger consensus
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-:2235
while mist feature
\pm 12239 + (3).7(2)
HARRY Maa can be any naturally accurring amino acid
".... misc_feature
\text{ADDDA} = (4) \cdot \overline{\text{T}}(7) Allows Maa can be any naturally occurring amino acid
%12...
%2.31% miss_feature
%3.33% (%)..(11)
Hiller Mas can be any naturally occurring amine acid
<:2100
::2110 misc_feature
::2110 (15)..(17)
::2130 Mag can be any naturally occurring amino acid</pre>
Fig. (1)
Fig. (1)
Fig. (2)
Fig. (2)
Fig. (3)
Fig. (3)
Fig. (3)
Fig. (4)
Fig
<i2...:- -..2)\(\bar{\tau}\). (24)</pre>
His de Maa can be any naturally occurring amino acid
+111000
+111000
+111000
                     m.sc_feature
+.6)../30)
                     This can be any naturally occurring amino acid
  [4:00]
 Pho Maa Cys Xaa Maa Maa Xaa Cyb Maa Xaa Maa Phe Maa Maa Xaa Xaa
Maa Deu Maa Xaa His Maa Xaa Kaa His Xaa Maa Xaa Kaa Xaa
                                   20
                                                                                                                2.5
  12 101 - 3
12 111 - 38
HILL PET
   Libb Artificial
  1.7. 1.1.
   Laste synthetic - zanc finger consensus
  (\underline{\cdot},\underline{\cdot},\underline{\cdot})\in (\underline{\cdot},\underline{\cdot})
+:122:-
-:123:
                    Maa can be any naturally occurring amino acid
  1...101+
  1 .:1 - misq_feature
1.::2: 4)...(7)
Kaa can be any naturally occurring amino acid
                                                                                                                                    Page 5
```

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413300 A
 HALL1 - misc feature
 +i\hbar.i\hbar \leftarrow (9).\overline{.}(11)
 HULLY Maa can be any naturally occurring amino acid
Hitter
Hitt
∴ 1 / m:sc_feature
 HULL: (19) ... (20)
 +\text{Coll}_{\mathcal{F}} . What can be any naturally occurring amino acid
<!:() *</pre>
H.T. lib misc_feature
 (22). (24)
Fig. 7.8 Maa can be any naturally accurring amino acid
Hitting
H
                                                     _6)..(3C)
Has been keeping naturally occurring amine acid
-14 may 6
   Tyr Maa Cys Xaa Kaa Maa Xaa Cy. Maa Xaa Xaa Phe Xaa Xaa Xaa Xaa
 Maa Deu Maa Xaa His Maa Xaa Xaa His Xaa Xaa Xaa Xaa Xaa
                                                                                          20
                                                                                                                                                                                                                                                 25
01.11 % TO 8 % PET
   List Artificial
Hitting
H
HOLD MISC_feature
  All. The Maa can be any naturally occurring amino acid
   .....
 Millir misc_feature
     1111 C.
while misc_feature
 +3221+(3).7(8)
 422.8 Xaa can be any naturally occurring amino acid
 <4000 7
 Xaa Cys Xaa Xaa Xaa Xaa Cys Xaa
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- 210 - 8
-211 - 12
· Bla · PRT
· .:1: · Artificial
· .::20 ·
+...3 · synthetic - variegated linker for Lam B, between codons 153/154
· 11110
-0.026 \times
%321 · misc_feature
-0.022 \times (5)...(8)
+223 Maa can be any naturally occurring amino acid
- <u>2</u>239 -
· 221 · musc feature
-0.000 \cdot (10) \overline{.} \cdot (10)
+223 · Maa can be any naturally occurring amino acid
 400 - 8
Oly Ash Maa Cys Maa Maa Maa Maa Cys Maa Ser Gly
                 5
                                       1.0
+...10 + -9
+ 111 + 4

11 + PRT

+ 11 + Artificial
- 226 a
synthetic - portion of M13 gene VIII protein
- 455p. 9
Mot Lys Lys Ser
* <u>11</u>00 *
-123 - synthetic - interdomain linker
· :: 01. - 1(:
Glu Gly Gly Gly Ser
+ 310.+ 11
+ 310.+ 15
+ 310.+ PAT
-213> Artificial
```

```
-1220.
+0.03 - synthetic - interdomain linker
+1400 - 11
Glu Gly Gly Gly Ser Gly Ser Ser Ser Leu Gly Ser Ser Ser Leu
+U 100 − 12
+1.11% 4
+1.11% PRT
+1.13 Artificial
HIII009
HIII039 synthetic - 39-42 segment of human ITI-D1
+14000- 12
Met Gly Asn Gly
:0110:- 15
+UD10+ 4
+UD10+ PET
+UD10+ Artificial
+1,11 (ii) +
******* synthetic - 96-99 segment of trypsin
-14000- 13
Jer Asn Thr Leu
+02100+ 14
+02110+ 4
+0210+ PRT
+0013+ Artificial
-1220.-
+113. synthetid - interdomain linker
< 4.000 - 14</p>
Gly Gly Gly Ser
Hiller 15
Hiller 5
Hiller PHT
Hiller Artificial
%120.
%123 - synthetic - interdomain linker
1400. 15
Glu Gly Gly Gly Thr
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+210> 16
+211+ 5
+21.> FRT
 Artificial
8 D. 18 A
· 2... synthetic - interdomain linker
16
Oly Ser Ser Ser Leu
+310 - 17
. 211 - 11
· L1.1 · PET
·213 Artificial
12. 1. synthetic, EGGGS linker at NarI site of gene of Table 113
3400 × 15
 N; Bly Blu Gly Gly Gly Ser Ala Ala Glu Gly
+210 + 1:
+211 + 1:
+211 + PFT
+213 + Artificial
% 2.5% *
% 25% * synthetic, M13.3X11 junction
 400 18
314 Gly Gly Gly Ser Gly Ser Ser Ser Leu Gly Ser Ser Ser Leu
+110 - 19
Lile 16
File PFT
File Artificial
- 15 m
Synthetic - Class I microprotein library
..... Xaa can be any naturally occurring amino acid
. . . . . .
```

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HARRY misc_feature
HARRY (9)..(10)
HARRY Xaa can be any naturally occurring amino acid
-(400) + 19
Mana Maa Maa Kaa Kaa Kaa Cys Kaa Kaa
H210 + 24
H311 + 13
H313 + PRT
COlla Artificial
3000 B
40^{\circ}13^{\circ}+ synthetic, alpha conotoxir consensus
HDL) +
HDD1 + misc_feature
-12.2.1 -
        (1)..(1)
HIBBY Maa can be any naturally recurring amino acid
·:2235
#121 misc_fear
       misc_feature
Had3 - Maa can be any naturally occurring amino acid
×1220 ×
HUUl = misc_feature
4012 \times (3)...(12)
HAMBE Maa can be any naturally occurring amino acid
1470 ....
Maa Dys Oys Maa Maa Maa Cys Maa Maa Maa Maa Cys
Hull - Artificial
1227
3223 - synthetic, alpha conotoxin consensus
100
....il   misc_feature
\pm 0.000 + (1).7(1)
HANGE Maa can be any naturally occurring amino acid
HILLO.HILLO.misc_feature
HILLO.misc_feature
HILLO.misc_fe
+32230 - Maa can be any naturally occurring amino acid
+1.11... (JC+
HILLI: misc_feature
        -8)...(12)
<2200 Maa can be any naturally occurring amino acid
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-:<u>223</u>0 →
200 B
       misc_feature
•12.2.2.3 e
       (14)..(14)
+3223 - Maa can be any naturally occurring amino acid
-:400 - .:1
Xia Cys Cys Xaa Xaa Xaa Cys Xaa Xaa Xaa Xaa Xaa Cys Xaa
0010 - 00
0011 - 15
0010 - PRT
dolls Artificial
417 Buch
#ID3+ synthetic, alpha conotoxin consensus
71<u>2</u>20 7
HL21 - misc_feature
+1.11 \cdot (1) \cdot ... (1)
\pm 2.13 \pm 13 Maa can be any naturally occurring amino acid
<12.10 A
First misc feature (4)..(6) First Was can be any naturally occurring amine acid
AMBA: Maa can be any naturally occurring amine acid
(14)...(15)
 Mass can be any naturally occurring amino acid
-1400 + LI
Maa Cys Cys Xaa Xaa Xaa Cys Xaa Xaa Xaa Xaa Xaa Cys Xaa Xaa
+0210 + 20
+0211 + 14
+0212 PFT
d ... Artificial
High synthetic, alpha conotoxir consensus
\{(\zeta,\zeta,C)\}
HILE Maa can be any naturally occurring amino acid
\pm 32339 - Xaa can be any naturally occurring amino acid
                                       Page 11
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-:22:15
+::::::: misc_feature
(8)...(12)
Milit. Maa can be any naturally occurring amino acid
-1.1.1-
Mas can be any naturally occurring amino acid
-14-77 .13
Maa Cys Cys Xaa Maa Maa Cys Maa Maa Maa Maa Cys Maa Maa Maa
                                    10
H210 + 04
H211 + 17
H210 + PRT
H210 + Artificial
1.1.110
Finite synthetic, alpha conotoxin consensus
*:ID0 +
*:ID1 + misc_feature
*:ID2 + (1) . (1)
Allow Haa can be any naturally occurring amino acid
House Maa can be any naturally accurring amino adid
+12.0.*
+1.11+ misc_feature
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duling Maa can be any naturally occurring amino acid
44.00
Жин Cys Cys Kaa Maa Maa Cys Xaa Maa Xaa Maa Xaa Cys Xaa Xaa Xaa
1
Last
+0.10.+ 05
+0.110 18
+0.110 PRT
+0.130 Artificial
<2200
<2230 synthetic, alpha conotoxin consensus
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1337
stable mist feature
\pm0.02\pm(1).7(1) \pm0.03\pm Maa can be any naturally occurring amino acid
1. 24. 8
%Lil: misc_feature
%Lil: 20...(12)
4.332 Maa can be any naturally occurring amino acid
-1. <u>-</u>1.
SULL: misc feature
SULL: (14)..(18)
SULL: Maa can be any naturally occurring amino acid
0.4 \times 1.0 \times 10.5
\mathbb{K}_{1:1} Cys Cys Xaa Xaa Xaa Cys Xa_{0} Xaa Xaa Xaa Xaa Cys Xaa Xaa Xaa
Жан Жаа
10.137 | 06
10.110 | 14
1.1. PRT
* loo Artificial
St. We synthetic, alpha constoxin consensus
Maa can be any naturally occurring amine acid
*1. 1. 1
*1. 1. 1
*1. 1. 1
       nusc_feature
        3 · . . [7]
Hall He Maa can be any naturally occurring amine acid
+1,12+1+
+1.11 11+
       misc feature
-1.11
        +3)...(13)
Hall to Maa can be any naturally occurring amino acid
-1400 2 26
Maa Maa Cys Cys Maa Maa Maa Cys Maa Maa Maa Maa Maa Cys
+0.100+ 27
+0.110+ 15
<2100 PRT
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· 113 · Artificial
 · ..........
 \cdot \ensuremath{\mathcal{M}} \cdot \ensuremath{\mathcal{M}} \cdot synthetic, alpha conotexin consensus
.....
....misc_feature
 \cdot 222 \cdot (1) \cdot ... (2)
 *1.3 * Kaa can be any naturally occurring amino acid
 - 1211 -
- 1111 -
- 1211,4
        misc feature
         (5)..(7)
 82238 Maa can be any naturally occurring amino acid
 4250 A
*3230 Maa can be any naturally occurring amino acid
5 442 (2.8)
misc_frature
        (15)^{-}. (15)
        Maa can be any naturally occurring amino acid
34 gale 27
Maa Maa Cys Cys Maa Maa Maa Cys Maa Maa Maa Maa Maa Cys Maa
                                          10
+210 > 28
+211 > 16
-211 - FT
 11 Artificial
18 B. C. W.
*3.32 synthetic, alpha conotoxin consensus
+ 1100 ×
3 D. O.
..... misc_feature
(0.21 \times (0.5) ... (7) ... Xaa can be any naturally occurring amino acid
1. July 1
-:::: misc_feature
+.12+ (9). \overline{\phantom{0}} (13) +.12+ Yaa can be any naturally occurring amine acid
rill - misd_feature
r.ll - 115)...16
edite. Yaa can be any naturally occurring amino acid
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 ${\tt Xuu}$ ${\tt Xuu}$ ${\tt Xuu}$ ${\tt Cys}$ ${\tt Xuu}$ ${\tt X$

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1

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+ 2105 - 29
- 211 - 17
· Dil PRT
-313 - Artificial
 2.26
- 32: - synthetic, alpha conotexin consensus
- 2200
+121 + mist_feature
+122 + (5)..(7)
+123 + Maa can be any naturally occurring amino acid
-220-
130
131 * misc_feature
1333 * (9)..(13)
1333 * Maa can be any naturally occurring amin: acid
× 229 ×
94 July - 29
Han Haa Cys Cys Maa Maa Maa Cys Maa Maa Maa Maa Maa Cys Maa Maa
                               10
⊠аа
+210 + 30
+211 + 16
+212 + PRT
-213/ Artificial
1220
· 223 - synthetic, alpha conotoxin consensus
... The Yaa can be any naturally occurring amino acid
```

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Ladner7L.ST25.txt
FREES: Maa can be any naturally occurring amino acid
1.1.101
HILL: misc_feature
+3.7.2 + (15)^{-}...(18)
Hamilton Maa can be any naturally occurring amino acid
H14 H015 30
Mada Maa Cys Cys Maa Maa Maa Cys Maa Maa Maa Maa Maa Cys Maa Maa
                                         10
Maa Maa
Hillion 31
Hillion 19
Hillion PET
Hillion Artificial
40.00
+CLIB* synthetic, alpha conotoxin consensus
41<u>2.25</u>5.4
clil. r.:sc_feature
Fig. (1). \overline{L}(2) . What can be any naturally obcurring amino acid
4.334 Mea can be any naturally occurring amine acid
Hilli :
Hilli : misc_feature
Hilli : (9)..(13)
 223 - Maa can be any naturally occurring amine acid
Hillion
Hillion misc_feature
Hillion (15)..(19)
4223 - Maa can be any naturally occurring amino acid
34100 × 32
Maa Maa Cys Cys Maa Maa Maa Cys Maa Maa Maa Maa Maa Cys Maa Maa
Жын Жаа Жаа
1323 -
<223. Synthetic, Mu conotoxin consensus
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+12.100×
..... misc_feature
Fig. (1). \overline{\Gamma}(2) = Fig. 3. Maa can be any naturally occurring amino acid
-1111
minil - misc_feature
chize (5)..(3)
\pm 22.3 \times Maa can be any naturally occurring amino acid
3233 Maa can be any naturally occurring amino acid
HIRROR Misc_feature
HIRROR (16)..(19)
HIRROR Maa can be any naturally occurring amino acid
+1\dots \pm 1\dots +
# 11/ misc_fwature
# (02)..(22)
HIGH Maa can be any naturally occurring amino acid
94400 S.S.
Max Maa Cys Cys Kaa Maa Xaa Xaa Kaa Cys Kaa Xaa Xaa Xaa Cys Xaa l= 10 = 15
Maa Maa Maa Cys Cys Maa
20
PET
1400 - 33
Any Asp Cys Cys Thr Pro Pro Lys Lys Cys Lys Asp Arg Gln Cys Lys
Pro Gln Arg Cys Cys Ala
+1110 + 14
+111 + 14
+111 + PET
Tim Artificial
41<u>0.00</u>00
+0.13 synthetic, omega conotoxin consensus
-11.00:
       misc_feature
[2]..(7)
- 12.21
- 12.21
<\!223. Maa can be any naturally occurring amino acid
                                            Page 17
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....
 :21... misc_feature
:771... (9)..(14)
 1223. Maa can be any naturally occurring amino acid
. .....
-:::1 · misc feature
 222 \times (17)^{-}. (19)
1997 Maa can be any naturally occurring amino acid
+.000+
+.011+ misc_feature
+.021+ (.00)..(23)
         (30)^{-}.(23)
-123 - Maa can be any naturally occurring amino acid
+400 + 34
Tys Maa Maa Maa Maa Maa Cys Maa Maa Maa Maa Maa Maa Cys Cys
                                              10
Maa Maa Maa Maa Maa Maa Cys
              011.
10 / 35311 / 35321 / BFT
· 113 Artificial
 320 -
synthetic, omega conotoxir consensus
- 117 .
+ULL / rusc_feature
+222 \times (2).7(7)
Holder Maa can be any naturally occurring amino acid
+100 x
*f321 x misc_feature
*f321 x (3) ..(14)
+123 - Maa can be any naturally occurring amino acid
+ 0255 ×
Fig. 1. misc reature Fig. (19) Fig. (19) Fig. 2003 - Maga can be any naturally occurring amino acid
s \in \mathcal{N}_{p}^{\infty}(\mathbb{R}^{n})
...ll - risc_feature
\pm 1.17 \pm -0.1) \overline{1.0} (24) \pm 1.15 \pm 0.25 . Mass can be any naturally occurring amino acid
+435+ 35
Cys Kaa Kaa Kaa Kaa Kaa Kaa Cys Kaa Kaa Kaa Kaa Kaa Kaa Cys Cys
Xaa Xaa Xaa Cys Xaa Xaa Xaa Cys 25
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+210+ 36
+211+ 25
 + 117 · FFT
+ 713 · Artificial
 18 1 2 TEACH
 and a synthetic, omega conotoxin consensus
%.liv
%201 * misc_feature
LID** (2)..(7)
%20** Maa can be any naturally occurring amino acid
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 \pm 2.73 \times Maa can be any naturally occurring amino acid
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challe misc_feature
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club; Waa can be any naturally occurring amino acid
\leq 1.7(0) \leq
+201 - misc_feature
+200 - (10)..(24)
+200 - Eaa can be any naturally occurring aminc acid
\sim 4.00 - 56
 Tyr Haa Haa Haa Haa Haa Kaa Cys Haa Haa Haa Haa Haa Haa Cys Cys
Koa haa Cys Kaa Maa Maa Maa Kaa Cys
             20
+3183 37
+011 + 06
+010 + FPT
+113 + Artificial
% 11% -
% synthetic, cmaga conotoxin consensus
...... Maa can be any naturally occurring amino acid
%;(%)
%ich misc_feature
%ill (9)..(14)
%ill Xaa can be any naturally occurring amino acid
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<12.200×
.mail misc_feature
+:212:-(21)^{-}.(25)
+0.03 Maa can be any naturally occurring amino acid
+141,00- 37
Cys Maa Maa Maa Maa Maa Maa Cys Maa Maa Maa Maa Maa Maa Cys Cys
\mathbb{K} \mathbb{A} \mathbb{A} Maa Maa Cys Maa Maa Maa Maa Cys \mathbb{Z} \mathbb{O}
+1110 · 35
:0111 - 26
Hills PET
H013 - Artificial
11222
Hills - synthetic, omega conotoxin consensus
3020 A
HDD1 + mist_feature
HDD1 + (D) ..(7)
MANAGE Maa can be any naturally tocurring amine acid
-122C-
Fig. 21 - misc_feature
+0.02 - (0)..(14)
+0.03 - Maa can be any naturally +courring amino acid
Range Maa can be any naturally occurring amino acid
HIDD +
HIDD + misd_feature
HIDD + (DO)..(25)
HIDD + Maa dan be any naturally addurring among acid
- (400) - 135
Cys Maa Maa Maa Maa Maa Maa Cys Maa Kaa Kaa Xaa Xaa Xaa Cys Cys
Mus Maa Dys Maa Maa Maa Maa Maa Maa Dys
0.10 + 3 +
0.11 + 0.7
0.010 + PET
0.013 + Artificial
41717 T
*:id: - synthetic, omega conotoxin consensus
```

<2226.2

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Hall mist feature
+1.1.12 + (2)...(7)
Fill3 - Waa can be any naturally occurring amino acid
-12.00 -
\pm 127 + \text{Maa} can be any naturally occurring amino acid
\{(1,1,1,1,\dots)\}
+001 - mist_feature
· 201 - (21)..(26)
+223. Maa can be any naturally occurring amino acid
- 400 - 39
stys Maa Maa Maa Maa Maa Maa Cys Maa Maa Kaa Xaa Xaa Xaa Cys Cys
                                   1.0
Maa Maa Maa Cys Maa Maa Maa Maa Maa Maa Cys
+1210 + 40
+1211 + 14
+1212 + PRT
+1212 + Artifudial
%.dd /
%.llb / synthetic, metal finger protein library
-12200. -
+Col+ misc_feature
+Col+ (5)..(10)
+Col3+ Maa can be any naturally occurring aminc acid
-(400)- 40
His Asn Gly Met Maa Maa Maa Maa Maa His Asn Gly Cys
HOLDS 41
HOLDS 14
HOLDS PET
HOLDS Artificial
-12.26.-
*Ill: synthetic, metal finger protein library
-12.65. Kaa can be any naturally occurring amino acid
-:400:- 41
```

```
Cys Asn Gly Met Xaa Xaa Xaa Xaa Xaa His Asn Gly His
<2.10 → 4.3
H.111 - 15
HDID + PRT
HDID + Artificial
-10.00
HUDBA synthetic, metal finger protein library
42204
#221 - misc feature
#222 - (4).7(4)
#223 * Maa can be any naturally occurring amino acid
40000
%.21 * m.sc_feature
%.22 * (6)..(11)
HARBY Maa can be any naturally occurring amino acid
-(400 + 40)
{
m His} Gly Pro Maa Met Maa Maa Maa Maa Maa Maa His Asn Gly Cys
                                        1:)
+010 + 43
+111 + 15
+010 + PAT
+13 + Artificial
\pm 21.3 \pm synthetic, metal finger protein library based on 440-461 of
        HARD90, Fig. 1
+ 400. - 43
Ser Asp Glu Ala Ser Gly Cys His Tyr Gly Val Leu Thr
+:210:- 44
+0110 58
+0110 PRT
+013 bovine- Bos taurus
-140(0) 44
Arg Fro Asp Phe Cys Leu Glu Fro Pro Tyr Thr Gly Pro Cys Lys Ala
                                         10
Arg Ile Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
              20
Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala
```

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala 50 55

```
·310 · 45
```

. 11 56

1.12 · PRT

- 11 Artificial

-120-

*:33 * synthetic - EpiNE alpha (13-21)

· 400 · 45

Ary Fro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala

Met. Phe Gln Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr

Ene Val Tyr Gly Gly Cys Met Gly Asn Gly Asn Asn Phe Lys Ser Ala 40

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala 50

+ 110 + 46 + 111 + 58 + 112 + PRT

- 13 - Artificial

+...3 * synthetic - EpiNE3 (13-21)

+ 400 - 46

Ary Fro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Gly

Fne Phe Ser Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr

Fig. Val Tyr Gly Gly Cys Met Gly Asn Gly Asn Asn Phe Lys Ser Ala 35 40 45 40

Gl: Asp Cys Met Arg Thr Cys Gly Gly Ala 50

+2100+ 47 +2110+ 58 +2120+ PET +.130+ Artificial

· .101-

%223% synthetic ~ EpiNE6 (13-21)

-(40). - 47

Arg Fro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Gly 1 5 10 15

Pho Phe Gln Arg Tyr Phe Tyr Ash Ala Lys Ala Gly Leu Cys Gln Thr ± 3

Pho Val Tyr Gly Gly Cys Met Gly Asn Gly Asn Asn Phe Lys Ser Ala $\frac{35}{40}$ 45

Giu Asp Cys Met Ang Thr Cys Gly Gly Ala 30 - 59

+0:100+ 48 +0:110+ 58 +0:120+ PET +0:130+ Artificial

-1,1201-

HUDBS: synthetic - EpiNE7 (13-21)

HG1001- 48

Ang Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala 1 - 5 - 10 - 15

Met Phe Pro Arg Tyr Phe Tyr Ash Ala Lys Ala Gly Leu Cys Gln Thr 20 30

Phe Val Tyr Gly Sly Cys Met Gly Asn Gly Asn Asn Phe Lys Ser Ala ± 5 40 45

Glu Asp Cys Met Ang Thr Cys Gly Gly Ala 50 58

+02100 49 +02110 58 +02120 PRA

4014 Artificial

 $+1.7(101) \times$

Suddle synthetic = EpiNE4 (13-01)

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala 1 5 10 15

Ile Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr 20 30

Phe Val Tyr Gly Gly Cys Met Gly Asn Gly Asn Asn Phe Lys Ser Ala 35 $-40\,$

Page 24

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala K210: 50 HD1114 58 1.1 PF.T 1.10 Artificial -12200-HABBE synthetic - EpiNE8 (13-21) H14000 50 Arg Pro Asp Fhe Cys Leu Glu Prc Pro Tyr Thr Gly Pro Cys Val Ala The Phe Lys Arg Leu Phe Tyr Asr. Ala Lys Ala Gly Leu Cys Gln Thr Phe Val Tyr Gly Gly Cys Met Gly Asn Gly Asn Asn Phe Lys Ser Ala 35 40 45 Glu Asp Cys Met Arg Thr Cys Gly Gly Ala +0010 + 51 +0011 + 58 +0010 + PFT +0013 + Artificial $\{(1,2,3,1)\}_{i=1}^n$ cdd3 - synthetic - EpiNE1 (13-31) H1400H 51 Ard Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Ile Ala Prie Phe Pro Arg Tyr Phe Tyr Asr. Ala Lys Ala Gly Leu Cys Gin Thr Fine Val Tyr Gly Gly Cys Met Gl; Asn Gly Asn Asn Phe Lys Ser Ala 3Eu Asp Cys Met Arg Thr Cys Gly Gly Ala 0010 - 50 0011 - 5 -0010 - PRT

Hulls - Artificial

^{4:229 +}

```
Ladner7L.ST25.txt
```

<223 - synthetic - EpiNE5 (13-01)</pre>

<110 - 5...

Ard Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Ile Ala

Pho Phe Gln Arg Tyr Phe Tyr Asr. Ala Lys Ala Gly Leu Cys Gln Thr 30 25 30

Pho Val Tyr Gly Gly Cys Met Gly Asn Gly Asn Ash Pho Lys Ser Ala

Glu Asp Cys Met Ang Thr Cys Gly Gly Ala

<d210x 5 +
<dd11x 5 +
<dd11x FET
<dd1xx PET
<dd1xx Artifical</pre>

*Characle synthetic = EpiNE.. (13-11)

(1) (1) E E

And Ero Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Ile Ala

bes. The Bys Arg Tyr Phe Tyr Ast. Ala Dys Ala Gly Leu Cys Gln Thr

Pho Val Tyr Gly Gly Cys Met Gly Ash Gly Ash Ash Phe Lys Ser Ala

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala ± 0

:::IC: 54

Filling Em

HILL FAT

HULBE Artificial

-1111 Cl-

HILLS: synthetic - EpiC 1 and EpiC 11 (15-19)

Arg Fro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Met Gly 1 5 10 15

Phe Ser Lys Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr

Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala

+03100+ 55 +0.100+ 58 +00100+ P57 +01100+ Artificial

<:120::
<!127: synthetic = EpiC7 (15-19)</pre>

-140(0) 55

Ard Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Met Ala

Let Phe Lys Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Let Cys Gln Thr 20 - 25 - 30

Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala $\frac{1}{12}$

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala 50

+1210.4 58 +1211.4 58 +121.04 PRT +1213.4 Artificial

%120.%1230- synthetic - Epi C8 (15-19)

74000 56

Arg Pro Asp Phe Cys Leu Glu Pro Pro Asn Thr Gly Pro Cys Phe Ala 1 10 15

The Thr Pro Arg Tyr Phe Tyr Asr. Ala Lys Ala Gly Leu Cys Gln Thr 20

Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala 40

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala 50

0011-50

(211 + 58 (212 + PET

4213 Artificial

(220 ← :::::3 · synthetic - EpiCl0 (15-19) -(400 - 57 Ang Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Met Ala 1 5 10 1510 Leu Phe Bln Arg Tyr Phe Tyr Asn Ala Lys Ala Bly Leu Cys Gln Thr Pro Val Tyr 3ly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala ± 5 40 45 Glu Asp Cys Met Arg Thr Cys Gly Gly Ala 55 +00100 58 +00110 58 +00100 PRT +3313 · Artificial 4131 Bus +2233+ synthetic - EpiC20 (15-19) · 4000 55 Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Met Ala The Ser Erc Arg Tyr Phe Tyr Ash Ala Lys Ala Gly Leu Cys Gln Thr The Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala 40 Gir Asp Cys Met Arg Thr Cys Gly Gly Ala -00100 59 +00110 58 +00100 PFT dilse Artificial -0.2000 33233 synthetic, EPiNE7.6 Arg Pro Asp Fhe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala $1 ag{5} ag{15}$ Met Phe Fro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr

Page 28

Phe Leu Tyr Gly Gly Cys Lys Gly Lys Gly Asn Asn Phe Lys Ser Ala

+02100+ 60 +02112 58 +02122 PET +02132 Artificial

+11232 synthetic, EPiNE7.8, 7.9, 7.31

H4005 60

Arg Prc Asp Phe Cys Leu Glu Prc Pro Tyr Thr Gly Pro Cys Val Ala

Mot Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr

Phe Glu Tyr Gly Gly Cys Trp Ala Lys Gly Asn Asn Phe Lys Ser Ala 35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala 50

+210/ 61 +211+ 58 +317+ PET

0.113 Artificial

-12202

/223/ synthetic, EPiNE7.11

-1400 - 51

Arg Pro Asp Phe Cys Leu Glu Pro Pro Fyr Thr Gly Pro Cys Val Ala 1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asa Ala Lys Ala Gly Leu Cys Gln Thr

Pne Gly Tyr Ala Gly Cys Arg Ala Lys Gly Asn Asn Phe Lys Ser Ala 40

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala 50 55

:21) ← 62 :211 ← 58

- -0212> PFT
- HE13: Artificial
- -:220:-
- +DDB32 synthetic, EPiNE7.7
- 44060 62
- Ard Fro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
- Not Fhe Fro Arg Tyr Fhe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr 20
- The Glu Tyr Gly Gly Cys His Ala Glu Gly Asn Asn Phe Lys Ser Ala 35 -40 -45
- Gin Asp Cys Met Ang Thr Cys Gly Gly Ala 80 55
- +210× 63
- .211/ 55
- 2120 PRT
- 213 Artificial
- 2220
- +103 synthetic, EPiNE7.4, 7.14
- 400 6:
- And Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
- Mot Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
- Phe Leu Tyr Gly Gly Cys Trp Ala Gln Gly Asn Asn Phe Lys Ser Ala 40
- Glu Asp Gys Met Arg Thr Gys Gly Gly Ala 50

- H216 + 64 H11 + 58 H117 + PHT H218 + Artificial
- 41.2.200 -
- Hills synthetic, EPiNE7.5
- <400 64
- Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala 1 5 15

```
Ladner7L.ST25.txt

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30
```

Phe Arg Tyr Gly Gly Cys Lou Ala Glu Gly Asn Asn Phe Lys Ser Ala 35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala 80 55

+1210 + 65 +1211 + 58 +1212 + PRT

HD13 · Artificial

:0000 e

synthetic, EPiNE7.10, 7.20

3400 × 55

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala 1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr 10 30

Phe Asp Tyr Gly Gly Cys His Ala Asp Gly Asn Asn Phe Lys Ser Ala 35 40 45

Rin Asp Cys Het Ang Thr Cys Gly Gly Ala 50 55

+ 0100+ 66 + 0110+ 58 + 0120+ PET

+1130 Artificial

- 2200

+ 4000 66

Arg Pro Asp The Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr 20 25 30

The Lys Tyr Gly Gly Cys Leu Ala His Gly Asn Asn Phe Lys Ser Ala 35 $\,$ 40 $\,$ 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala 50 $^{\circ}$

Ladner7L.ST25.txt <:310 · 67</pre> 1211 - 58 $\pm 0.117 \pm - \text{PRT}$ +3213 · Artificial 40.22 J + 1 Hallber synthetic, EPiNE7.16 <400 - 67 Ary Fro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr Pho Thr Tyr Gly Gly Cys Trp Ala Asn Gly Asn Asn Phe Lys Ser Ala 35Glu Asp Cys Met Arg Thr Cys Gly Gly Ala 50 -55+2100 68 +3110 58 +3120 PRT +2130 Artificial -1200 10.33 synthetic, EPINE7.19 F 40 35 63 Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala 5 10 15 Met Phe Pro Arg Tyr Phe Tyr Ash Ala Lys Ala Gly Leu Cys Gln Thr Five Asn Tyr Gly Gly Cys Glu Gly Lys Gly Asn Asn Phe Lys Ser Ala 35 40 45 Glu Asp Cys Met Arg Thr Cys Gly Gly Ala +121.00- 69 +Ullis 5: +Ullis 5: +Ullis PRT +Ullis Artificial -1_100 FIRE synthetic, EPINE7.12 -:40U> 63

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala 1 10 15 Page 32

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr

Phe Gln Tyr Gly Gly Cys Glu Gly Tyr Gly Asn Asn Phe Lys Ser Ala

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala 50

-:2109 70

+U13 - Artificial

-020-

Finits - synthetic, EPiNE7.17

-1400× 70

Ang Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala $\frac{1}{2}$ 5 10 15

Mot Phe Pro Ard Tyr Phe Tyr Ash Ala Lys Ala Gly Leu Cys Gln Thr

Pho Glr Tyr Gly Gly Cys Leu Gly Glu Gly Asn Asn Pho Lys Ser Ala $\frac{35}{40}$ 45

GLU Asp Cys Met Arg Thr Cys Gly Gly Ala 50 55

+1210 + 71 +1211 + 58 +1212 + PET +1213 + Artificial

40000

HARRY synthetic, EPINE7.21

And Pro Asp Pho Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala

Met Phe Pro Arg Tyr Phe Tyr Asr. Ala Lys Ala Gly Leu Cys Gln Thr 20 25 35

Phe His Tyr Gly Gly Cys Trp Gly Gln Gly Asn Asn Phe Lys Ser Ala 35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala 50 55

+210> 72 HD111 58 +121.10+ PRT +0.10+ Artificial 111111 HULLING synthetic, EPINE7.22 -:40% - 72 Ang Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala Met Phe Pro Arg Tyr Phe Tyr Asr. Ala Lys Ala Gly Leu Cys Gln Thr Phe His Tyr Gly Gly Cys Trp Gly Glu Gly Asn Asn Phe Lys Ser Ala Glu Asp Cys Met Arg Thr Cys Gly Gly Ala 50 55 -1215 - 73 HILL 53 HILL PRT HILL Artificial -1025 -HILLS synthetic, EPINE7.13 +400 73 Arg Fro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala Mot The Pro Arg Tyr Phe Tyr Asr. Ala Lys Ala Gly Leu Cys Gln Thr $\frac{20}{10}$ Pine Dys Tyr Bly Gly Cys Trp Bly Lys Gly Asn Asn Phe Lys Ser Ala Gli Asp Mys Met Arg Thr Cys Gly Gly Ala H31) + 74 H311 + 5* H312 + PRT H313 + Artificial -:22) -<223 · synthetic, EPiNE7.24</pre>

-:40J.- 74

```
Ladner7L.ST25.txt
Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
Mot Phe Pro Arg Tyr Phe Tyr Asr. Ala Lys Ala Gly Leu Cys Gln Thr
Pho Lys Tyr Gly Cys His Gly Ash Gly Ash Ash Phe Lys Ser Ala \frac{25}{45}
Glu Asp Cys Met Ang Thr Cys Gly Gly Ala
50 55
+:210: 78
+:211: 58
1.1121 PET
<213 Artificial
-12200-
HDMBH synthetic, EPINE7.05
-14000 7E
And Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
i 5 10 15
Met Phe Pro Arg Tyr Phe Tyr Asr Ala Lys Ala Gly Leu Cys Gl<br/>n Thr -20\, -25\, 30
Pro Tro Tyr Gly Gly Cys Trp Ala Lys Gly Asn Asn Pro Lys Leu Ala
Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
HU100- 76
+U110 58
+U120 PRT
+U130 Artificial
+1.1.101+
+2230 synthetic, EPINE7.16
-14000- 76
Arg Pro Asp the Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala 1 ^{\circ} 10 ^{\circ} 15
Met Phe Fro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gl<br/>n Thr 20 30
```

Phe Lys Tyr Gly Gly Cys Trp Gly His Gly Asn Asn Phe Lys Ser Ala 31 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala

-1210 - 77 -1211 - 58 -1212 - PRT -1213 - Artificial

4222

HUUB - synthetic, EPiNE7.27

-1400 - 77

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala : 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Ash Ala Lys Ala Gly Leu Cys Gln Thr

Phe Ash Tyr Gly Gly Cys Trp Gly Lys Gly Ash Ash Phe Lys Ser Ala

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala 50

+1210 + 78 +2212 + 58 +2314 + PRT +233 + Artificial

10.56

 $\pm 0.13 \pm 1$ synthetic, EPiNE7.28

-1400.- 73

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala

Mot Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr

The Thr Tyr Gly Gly Cys Leu Gly His Gly Asn Asn Phe Lys Ser Ala $\frac{11}{12}$

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala $50\,$ 5.0

+0.100 79 +0.110 58 +0.110 PRT

*X133 Artificial

-1111

<2232 synthetic, EPiNE7.29

·:400> 79

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala

Met. Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr

The Thr Tyr Gly Gly Cys Leu Gly Tyr Gly Asn Asn Phe Lys Ser Ala 40

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala 50 55

#210: 80 #211: 58

HALLS PRT HILLS Artificial

-11002

*MM30 synthetic, EPiNE7.30, 7.34, 7.35

71400H 80

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr

Phe Lys Tyr Bly Gly Cys Trp Ala Glu Gly Asn Asn Phe Lys Ser Ala

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala

:210 > 81 ::211 - 58

HARLE PRT

+1113 · Artificial

-1.01210 -

H203 · synthetic, EPiNE7.32

-:4:10 - 81

Arg Pro Asp Pne Cys Leu Glu Pro Pro Tyr Thr Gl; Pro Cys Val Ala 1 5 15

Met Phe Fro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr

Phe Gly Tyr Gly Gly Cys Trp Gly Glu Gly Asn Asn Phe Lys Ser Ala 35

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala

- · 310. · 8.:
- ...11 55 -...12 PRT
- .15 Artificial
- +220 + +225 + synthetic, EPiNE7.33
- -400 82

Arg Fro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala

Met The Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr

the Glu Tyr Gly Gly Cys Trp Ala Asn Gly Asn Asn Phe Lys Ser Ala 40

Giu Asp Cys Met Arg Thr Cys Gly Gly Ala

- + 210 + 83 + 111 + 58 + 112 + PRT
- +.13 Artificial
- +020 -| 223 synthetic, EPiNE7.36
- 400 83

Arg Fro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr 20 25 30.20

The Val Tyr Gly Gly Cys His Gly Asp Gly Asn Asn Phe Lys Ser Ala $\frac{15}{15}$ 40 45

Nu Asp Cys Met Arg Thr Cys Gly Gly Ala

- +:11: 84 +:11: 58 +:11: PRT

- -313 · Artificial
- .220.+

- <:223: synthetic, EPiNE7.37</pre>
- <40.00 84

Ard Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gin Thr 2:0

The Met Tyr Gly Gly Cys Gln Gly Lys Gly Asn Asn Phe Lys Ser Ala 35

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala 50 55

- 7.110. 85 -.111. 58
- · .:12: PRT
- + 113 Artificial
- <11.10 ×
- +003 synthetic, EPiNE7.38
- -1400 · 85

Ary Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala 1 5 10 15

Met Phe Fro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr $\frac{20}{30}$

Phe Tyr Tyr Gly Gly Cys Trp Ala Lys Gly Asn Asn Phe Lys Ser Ala 35

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala

- +1210 + 80 +1211 + 58 +1212 + PRT
- 4213 · Artificial
- 11.121
- -:22+ synthetic, EPiNE7.39
- -:400 86

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala 1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr

Pho Met Tyr Gly Gly Cys Trp Gly Asp Gly Asn Asn Phe Lys Ser Ala 40

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala

-0010 · 97

HULLY 5W HULL 5W HULL PRT HULLS Artificial

-:11.000 ×

H223 - synthetic, EPiNE7.40

+(400 + 87

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala

Mot. Phe Pro Arg Tyr Phe Tyr Asr. Ala Lys Ala Gly Leu Cys Gln Thr

Phe Thr Tyr Gly Gly Cys His Gly Asn Gly Asn Asn Phe Lys Ser Ala ± 5

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala 50 55

4213 - Artificial

 ± 0.0000 ± 0.0000 synthetic, sequence for Table 131

-1210-

Fig. 15 misc_feature Fig. (1)...(6) Fig. 25 Mag can be any naturally occurring amino acid

·马克尔克·

Maa Maa Maa Maa Maa Maa

*1.130 8 0 *2110 24

·IIII DHA

+11139 Artificial

 $\pm 1.1\%$ $\pm 1.1\%$ synthetic, DNA for Class I microprotein library

4:220.4

```
-:2.1: misc feature
 +:3.22: (1) ...(2)
 +2230 n is a, c, g, or t
× 2000
 + hill = misc_feature
 · ... (3)
while n is a, c, g, or t
Fig. 6. Fig. 6
Hillow
Hill misc_feature
Hill: misc_feature
Hill: (13)..(14)
Hill: n is a, c, g, cr t
 -1550)+
+0000.
+0001. misc_feature
+0011. (22)..(23)
+0000. n is a, c, g, or t
 -:400 - 89
                                                                                                                                                                                                                                                                                                                                                24
 unitation in ngnngnnitg tinit
 H210 - 90
 HL11 + 13
HH11 + IHA
HH11 + Artificial
 ::120.
::213.- synthetic, ds ENA target, upper strand
  -14 00
                              90
                                                                                                                                                                                                                                                                                                                                                13
  postegaato ege
 +010 + 91
+011 + 15
+010 + EMA
  All: Artificial
  40000
   MARY synthetic, ds INA target, lower strand
 P400 - 91
                                                                                                                                                                                                                                                                                                                                                13
 qoqqatttqa ogg
 7210 - 93
7311 - 16
  HIII - DNA
  HU13 - Artificial
  <223> synthetic, ss DNA target, no hairpin
                                                                                                                                                                                Page 41
```

<pre>+ 400 \ cataacc</pre>	92 stag teatta	16
+010 + +011 + +012 + +011 + +	1:	
+ 2200 + + 223 +	synthetic, ss DNA target with hairpin	
-400- obgtage	93 gtac ctacgg	16
+ 210 + + 211 + + 212 + + 212 + + + 212 + + + +	15	
- 220 - - 219 -	synthetic, ds DNA target, upper strand	
- 400 - caegge	94 tatt acggt	15
.010 . .211 . .230 . 13 .	us 1. INIA Artificial	
	synthetic, ds DNA target, lower strand	
- 400 - accata	ns atag co	12
+ 210 + + 211 + + 212 + + 213 + +	96 10 ENA Artificial	
- <u>1.2</u> 4	synthetic, fragment of M13 gene VIII protein	
	(3)(20)	
ginnis alah ninc	Met Lys Lys Ser 1	20
2016 2016 2011 2016 2016	4	

```
+1220b
+3233: synthetic, fragment of M13 gene VIII protein
-14000- 97
Met Lys Lys Ser
-12100 98
HD100 BM
HD110 A0
HD100 DNA
HD130 Artificial
40000
+MML30+ synthetic, mutated N-terminal of M13 gene VIII
-12200-
では112 CFS
・12222 (例)..(20)
<(4 ()0) + 9.5°
                                                                                         20
acticcag ctg aaa aag tot
           Leu Lys Lys Ser
+010 99

<011 + 4

<0.10 + PET

+011 + Artificial
31229 x
HILL: Aynthetic, mutated N-terminal of M13 gene VIII
24.500 × 19.90
Let Lys Lys Ser
2010 - 100
2011 - 16
2011 - 101A
dls. Artificial
1000
Hall - synthetic, DNA for ID 10, upper strand
+400 - 100
                                                                                         16
cjauggarja ggatcc
+0210 + 101
+0211 + 16
+0210 + DNA
+0215 + Artificial
 1223 - synthetic, DNA for ID 10, lower strand, see also ID 16
<4))→ 101
```

	Ladner7L.ST25.txt	
oggato	etse teeete	16
::210 -		
+(211 + +(.112 +		
-1213 -	Artificial	
<1,(2:) → 1,(2:) →	synthetic, DNA for ID 17	
44.44c	102 gagg gaggaggato ogcogotgaa ggt	33
-1210 × -1211 ×	_1	
+0010 s +0013 x	DHA Artificial	
41.1. O x		
	synthetic, DNA for AAG 6-10 of ID 11	
-(400 -	105 topi detecatego e	21
ाराय अपूर्व प्रव		1 ک
+1,713, (): +		
82117 82127	ENA	
	Artificial	
+1209 + +1224 +	synthetic, INA for ID 10, M13.3X7	
: ' 4 (0) -		
रंश व≇वंदे	gayıq aggatooqoo	2.0
. 210.	105	
-111-	52	
R II 1 2 / R II 1 3 / R	Artificial	
-111591-		
	synthetic, ENA fir IE 18, M13.3X11	
- (40р) Ганададад	105 gdag gaggatongg atoptoptop otoggatopt optopotoge op	52
+1311114 +121114		
-10111	DNA	
	Artificial	
+12.200+ +12.230+	synthetic, ENA for library based on Pease et al. "Hybrid I" and	d
	"Hybrid II" (5-1))	
-:400: rvt7yt:	106 rrsv hgvhgrmg	18

```
< 210 · 107</pre>
+ 217 + DNA
· 213 · Artificial
+ 7 700 +
+22 - synthetic, DNA for library based on postions 4-7 CMTI-I
4. N. 19. 4
+J31 + misc_feature
(5)...(5)
-333 · n is a, c, g, or t
× 220 ×
+221 * misc_feature
+222 * (7)..(8)
+223 * n is a, c, g, or t
.400 - 107
                                                                                                 12
mytuntnnky wg
+ 010 + 168
+ 011 + 27
+ 011 + LMA
+ 011 + Artificial
+ PRF + synthetic, EpiNE alpha (13-21) DNA
+400 + 108
                                                                                                 27
man gogt ig ctatgttcca acgetat
+ 117 + 109
+ 111 + 27
+ 112 + EMA
+ 111 + Artificial
1.1.10 ×
+1134 synthetic, EpiNE3 (13-21) DNA
+400 + 109
                                                                                                 2.7
 hottgogtog gtttottoto acgotat
110 - 110
111 - 17
-111 - EMA
-11) - Artificial
-L. - synthetic, EpiNE6 (13-21) DNA
 400 - 110
                                                                                                  27
 :::: reging gtttotteca acgetat
+ 200 + 111
+ 111 + 17
+ 11 + 1NA
+ 212 + Artificial
```

٠ زوي ٠	22 4000	
. 123	synthetic, EpiNE7 (13-21) DNA	
+ 4fm; +	111 gtrg ctatgttece aegetat	27
erri i egrac	g. J clargited adjutat	
:1:	310	
- 111 - - 111 -		
	Artificial	
+ 11 by +	The state of the s	
	synthetic, EpiNE4 (13-21) DMA	
- 400 / - cottga	11. gtog ctatottoop acgotat	.37
510 - 511	213	
- 3112 -	EMA	
	Artificial	
+ 2200 × + 2200 +	synthetic, EpiNE3 (13-21) DNA	
e ⊈QQES	113	
	g.ng ctatottoaa abgotot	27
- 1.	3.1.1	
110 11		
1.	MODA Artificial	
. 117		
223	synthetic, EpiNE1 (13-21) DNA	
400 -	114 avog otttottoco acgotat	27
334.4		
1210 × 1211 ×	115	
. 212 -	LEGA	
- 21	A: tificial	
1.1.70 ·	synthetic, EpiNE5 (13-21) DNA	
e jane		
	arig otttottoca acgotat	27
- 1110 - - 111	- 57	
- 211 ·	TNA Artificial	
	··· vaaaaaaa	
	Synthetic, EpiC2 (13-21) DNA	
- 4 <u>1</u> 10	116	

Ladner7L.ST25.txt 27 cuttineating offitigational acgorate +.:10 + 117 +211 + 15+ DNA + DNA - \cdot 2.15 \cdot 2.15 \cdot synthetic, EpiC 1 and 11 (15-19) DNA 400 - 117 15 ataggttt:t ccaaa 110 118 71117 15 71117 DNA ...l. Artificial 127 - Synthetic, EpiC 7 (15-19) DNA 118 15 atggitttit tcaaa +110 + 119 0.11 15 0.12 DNA 0.11 Artificial -...%.-- :::- sunthetic, EpiC8 (15-19) DNA - 401 - 119 15 A. 10 - 110 *::11 + 15 +::12 + DNA -113 Artificial H226 K - IDB - synthetic, EpiCl0 (15-19) DNA + 450 + 1.0 15 a jjittijt todaa %.lb + 1.1 %ll + 15 %ll + EtlA %ll + Artificial -223 - synthetic, EpiC20 (15-19) DNA 460 - 121 15 striptatot docca

-211 - 122

```
·:211: 73
+00120+ PRT
·213: Artificial
-1206
-0.000 synthetic, amino acid seq 1
+14000+ 112
Mot Lys Lys Ser Leu Val Leu Lys Ala Ser Val Ala Val Ala Thr Leu
                                            1.0
Val Pro Met Leu Ser Phe Ala Ala Glu Gly Asp Asp Pro Ala Lys Ala
              20
Ala Phe Asn Ser Leu Gln Ala Ser Ala Thr Glu Tyr Ile Gly Tyr Ala
                                  40
Trp Ala Met Val Val Val Ile Val Gly Ala Thr Ile Gly Ile Lys Leu
                             55
Phe Lys Lys Phe Thr Ser Lys Ala Ser
+1.10 + 1.13
-0.11 64
-0.11 DNA
12.13
       Artificial
+0.30
+0.35 * synthetic, oligo #12
+:220 -
+:231 - musc_feature
+0.20 (21)..(22)
+0.23* n as a, c, g, ar t
%:228 /*
%:221 /* musc_feature
%:222 /* (24) ... (25)
%:237 /* n us a, c, g, or t
Hitto:
Hitto misc_feature
Hitto: (27)..(28)
Hills nusa, c, g, or t
-0.1000 \times -1.23
apgarogoat gogtacotgo nnknnknnkg otgaaggtga tgatooggoo aaagoggoog
                                                                                     60
                                                                                      64
3,503
\cdot 1.110 + -1.14
4311 - 70
 1.:1.: DNA
```

Page 48

4213 · Artificial

```
< 235 ×
+12? - synthetic, oligo #12a
* L.P. E.S.
+1.1+ misc_feature
+21. (21)^{-}. (22)
+313+ n is a, c, g, or t
+ 200 +
+ 201 + misc_feature
+ 201 + (24)..(25)
+ 203 + n is a, c, g, or t
-220-
+221 · misc_feature
+222 + (27)^{\top}. (28)
+225 + n is a, c, g, or t
130
+331 - mlsc_feature
+332 - (30)..(31)
+333 - n is a, c, g, or t
220 · 

+221 · misc_feature 

+211 · (23)..(34) 

+213 · n is a, c, g, or t
 400 - 104
ququqegeat gegtacetge nnknnknnkn nknnkgetga aggtgatgat eeggeeaaag
                                                                                                              60
                                                                                                               70
 organing agina
11. - 125
-111 - 76
-117 - DMA
-113 - Artificial
7220 ×
+223 + synthetic, oligo #12b
+1.0+
+211+ misc_feature
% 100 * (01:\frac{1}{2})
-_li+ n is a, c, g, or t
 ...b.
+.ib! = misd_feature
 (24)...(25)

(25)... r. is a, c, g, or t
% 120 * miss_feature
% 121 * miss_feature
% 121 * (27)..(18)
% 121 * n is a, c, g, ir t
· __: · n is a, c, g, or t
```

```
+ 220 + + 221 + misc_feature + 222 + (53)..(34)
+223 - n is a, c, g, or t
- LIG-
· ...l · misc feature
+1... + (56) ... (37)
· Ll. · n is a, c, g, or t
+120+
+211+ mass_feature
+211+ (39)..(40)
+123+ n is a, c, g, or t
× 4000 125
pogagogoat gogtacetge nnknnknnkn nknnknnknn kgetgaaggt gatgateegg
                                                                                                 60
                                                                                                  76
erasagogge ogogeo
210 · 106
- 211 · 21
- 211 · DNA
-213 - Artificial
- 130 -
- 121 - synthetic, oligo #13
-400 - 116
                                                                                                   23
qq:degge:g ctttggeegg atc
210 + 127
211 + 54
-211 + DNA
- 13 - Artificial
+.10+
+.223 - synthetic, oligo #14
% 100 %
% 201 % misc_feature
% 100 % (20) .. (30)
% 103% n is a, c, g, or t
+d10
+d10 misc_feature
+dd2 + (32)..(33)
-203 - n is a, c, g, or t
 -::: n is a, c, g, or t
 +463 - 117
 ;;:::reggta cegatgetgt ettttgetnn knnknnktte tgtetegage geeegega
                                                                                                   58
 + 113 + 118
+ 111 + 64
+ 111 + ENA
```

```
.:13 · Artificial
* 220 *
+223 · synthetic, oligo #14a
+ 229 ×
·...l · misc_feature
+2.1. (29) \overline{.} (30)
+223 · n is a, c, g, cr t
+320 +
+321 + miso_feature
+322 + (32)..(33)
+323 + n is a, b, g, or t
/020 x + 001 x misc_feature + 000 x (35) ... (36)
 DDB+ n is a, c, g, or t
+ 201 + misc_feature + 201 + (38)...(39)
+333 n is a, \sigma, \sigma, on t
4:00 - 1:18
 ggoogogta cogatgotgt cttttgctnn knnknnknnk nnkttctgtc tcgagcgccc
                                                                                             64
110.00%
210 - 129
-211 - 70
-212 - DNA
-..13 - Artificial
+ 226 ×
+223 * synthetic, clipo #14b
+111 + misc_feature
+111 + (20)1.(30)
-203 + n is a, c, g, or t
(3.2)^{-1} (3.3)
 +:110 + 
+:211 + misc_feature
+:122 + (31)..(36)
+:123 + n is a, c, g, or t
 .::::
.:::: misc_feature
.:::: (38)..(39)
```

```
·113 · n is a, c, g, or t
• 220 ·
+331 · misc_feature
+113 · (41)..(43)
+113 · n is a, c, g, or t
+ iiii    misc_feature
+3.22 + (44)...(45)
+233 + n is a, c, g, or t
1000
+ 201 · misc feature
+ 202 · (47)..(48)
+ 203 · n is a, c, j, or t
34400 - 129
amangaggta odgatgotgt ottttgotnn knnknnknnk nnknnknnkt totgtotoga
                                                                                                  60
                                                                                                   70
Haranegega
+210 - 130
+ 11 + 47
+ 212 + ENA
- 113 + Artificial
\pm 2200 \pm 2000 \pm 2000 \pm 3000 synthetic, original putative RBS
+400 + 130
                                                                                                   47
dagincagag gottactatg aagaaatoto tggttottaa ggotago
+ 010 + 101
+ 011 + 40
+ 012 + DNA
+ 013 + Artificial
120 CH
+ 2003 - synthetic, new RBS
+400 + 131
                                                                                                    49
 payntotypa ggaaataaaa tgaagaaato totggttott aaggotago
+116 + 132
-111 + 41
+211 + DMA
+113 + Artificial
...**
...*
...*
syntheticME16 upper strand
 8470 8 132
                                                                                                    41
 jst::tctsg agtcggcttt acactttatg cttccggctc g
+117+ 133
-111 31
-111 ENA
 - Ll: Artificial
```

```
· 1100
+333 - synthetic, MB16, lower strand
+400 · 133
                                                                                 37
ogagnoggaa goataaagtg taaagcogac totagag
× 210 × 134
+211+ 36
+212+ DNA
· 213 · Artificial
× 2200 ×
+213 - synthetic, MB22 insert, upper strand
+400 / 134
                                                                                 36
gateracted ecateceest gttgacaatt aateat
+310 + 133
+311 + 34
+312 + EMA
+313 + Artificial
+110 + +213 + synthetic, MB22 insert, lower stand
+4.00 135
                                                                                 34
egatjattaa ttgtcaacag ggggatgggg agtg
+210 + 136
+311 + 88
+313 + 1MA
Artificial
*2213 synthetic, DNA/amino acid for phoA signal peptide
+ 116
+ 221 +
+ 112 +
        TES
        123)..(88)
+ 450 + 136
                                                                                  52
gaintecatg ggagaaaata aa atg aaa caa agc acg atc gca etc tta eeg
                             Met Lys Gln Ser Thr Ile Ala Leu Leu Pro
                                                                                  88
 ::. 'tg ttt acc cct gtg aca aaa gcc cgt ccg gat
 Log Leu The Thr Pro Val Thr Lys Ala Arg Pro Asp
                   15
                                          20
 + 110 + 137
+ 111 + 12
+ 111 + FET
 -_:: Artificial
 .jus.
.lus. lynthetic, DNA/amino acid for phoA signal peptide
  400 - 157
```

```
Ladner7L.ST25.txt
Met Lys Gln Ser Thr Ile Ala Leu Leu Pro Leu Leu Phe Thr Pro Val
                                      10
Thr Lys Ala Arg Pro Asp
         2.0
·.10 · 133
-211 - 210
-312 - DNA
+ 113 · Artificial
\pm 320.8 \pm 323.8 amp gene promoter and signal sequence; signal peptide
- 11000
-2.11 / CDS
 100
      (136)..(210)
+415 · 138
quatroggig geactitieg gggaaatgig egeggaaeee etatitgitt attitietaa
                                                                           60
atarattosa anatgtatod gotoatgaga caataacoot gataaatgot toaataatat
                                                                           120
tinabaagga agagt atg agt att caa cat ttc cgt gtc gcc ctt att ccc
                                                                           171
                  Met Ser Ile Gln His Phe Arg Val Ala Leu Ile Pro
                                    5
                  1
                                                                           210
the fitt gog goa tit tigo off cot git tit got cat cog
its The Ala Ala Phe Cys Leu Pro Val Phe Ala His Pro
                                                    25
                              20
         1 0
_1.9 139
+111.4 25
+.113 PPT
4.13 Artificial
-1233 - amp gene promoter and signal sequence; signal peptide
7400 V 1239
Met Ser lle Glm His Phe Arg Val Ala Leu Ile Pro Phe Phe Ala Ala
                                                             15
                                       10
From Tys Leu Pro Val Phe Ala His Pro
             20
 010+ 140
+111+ 25
+110+ EMA
- ::: Artificial
-:: synthetic, mutagenic cligo-nt
-4... 140
```

Page 54

gtttcagcgg cgccagaata gaaag

```
+310 - 141
._11. . 15
· Dild · DNA
· :: · Artificial
* Address synthetic, adaptor for second Narl site, upper strand
+ 4000 + 141
                                                                                           15
tattetggeg deegt
+210 - 142
+211 + 19
+211 + DNA
+213 · Artificial
- 120:-
    synthetic, adaptor for second NarI site, lower strand
+407 + 14.3
                                                                                           19
compacyggo godagaata
+510 % 143
+211+ 402
+211+ DNA
..!3 · Artificial
+.120 +
+.223 * synthetic, DNA for Table 3, encodes ID122
+.34+
+.11+ misc_feature
+.11+ (10)..(12)
-12: - "nnn" is "ten" or "agy", n is a, c, g or t
+d:0+
+d21+ misc_feature
+d21+ (13)..(15)
+d21+ "nnn" is "ttr" or "ctn", n is a, c, g or t
+101 + misc_feature +10 + (18) ... (21)
 ·II: n is a, c, g, or t
%....*
%.... misc_feature
%... (27).. (27)
%... r. is a, c, g, or t
121.
121. misc_feature
121. (28)..(30)
121. "nnn" is "ten" or "agy", n is a, c, g or t
 · ___ n is a, c, g, cr t
```

```
+110 +
+331 +
+223 +
                         misc feature
                        (36)..(36)
+334 · n is a, c, g, or t
+311+ miss_feature
+.111 - (39) \overline{..} (39)
-1.13 \cdot n is a, c, g, or t
-::0::0.
-::11 - miss_feature
-::0. (42)..(42)
-ulik n is a, c, g, or t
+223 - n is a, c, q, or t
%. 0.   
%. 1.   
%. misc_feature  
%.22.   
%. (46)..(48)  
%. ...  
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+ 0200 ×
: 111 : misc_feature : (51) . (51)
 +3.3% n is a, c, g, or t
+2... + (54)..(54)
 en is a, c, g, or t
 %:10 **
%:11 * misc_feature
*:110 * (58)..(60)
*:110 * "nnn" is "ttr" or "ctn", n is a, c, g or t
 +1.00 +
+1.11 +
+1.01 +
+1.023 +
                           misc_feature
                            (61)^{-}. (63)
                            "nrn" is "ton" or "agy", n is a, c, g or t
 + .12 i +
  +//// misc_feature
  misc_feature
  +121 + (75) ...(75)
+113 + n is a, c, g, or t
   5 2 L 1 5
  misc_feature (85)..(87)
  Fig. "nnn" is "ttr" or "ctn", n is a, c, g or t
                                                                                                                                              Page 56
```

```
    2006 s

+ 771 - misc_feature
+ 732 - (93)..(93)
· Life n is a, c, g, or t
× ...25 ×
-1.31 - misc feature
+22 (96)...(96)
·Mar n is a, c, g, or t
+ 210 ·
+ 3000*
+ 301 + mist_feature
+ 301 * (105)..(105)
    mis a, b, g, or t
 .000.
.001. misc_feature
.001. (11/)..(117:
  e die n is a, c, y, or t
  - 320 -
 ::le:
:
  +0000
+001 * misc_feature
+000 * (144)..(144)
000 * n is a, c, g, or t
   +...'d+
+...'!+ mist_feature
    ! 210 :
! 121 : mist_feature
! 121 : (154) . (156)
! 125 : "nnn" is "ttr" or "ctn", n is a, c, g or t
     e^{i}_{(1,1),k,k}(x,y)
    ..... misc_feature
_____ (165)...[165]
```

```
· 13 · n is a, c, g, or t
+ 225 ×
 +:::1 · mist_feature
 (171)...(171)
·... n is a, c, q, or t
- 1100
- L.. : - mist feature
 +1.02 + (177)...(177)
 · MB* n is a, c, q, er t
4.000 ×
 -221 misc_feature
-221 (180)..(180)
 -213 n is a, c, q, or t
220.4
-221.4 mist_feature
-221.4 (184)..(186)
-221.4 "nra" is "car
                          "nnm" is "cyn" or "agr", n is a, c, g or t
3 2 July
 mis:_feature
                        (197)...(195)
"nr.n" is "e.jn" or "agr", n is a, c, g or t
-120 -
-121 - misc_feature
-121 - (213)..(213:
-123 - n is a, c, g, or t
 320 - 321 - mist_feature
-111 - (.33)..(228)
-113 - n is a, a, g, g, or t
 +:116 +
+:11 + miss_feature
+:1.3 + (381) . (231)
+:21 + n is a, i, g, or t
      1500
    ...
- Lli - miss_feature
   (237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237)...(237
  #1100 mlst_feature
#1110 mlst_feature
#1110 (240)..(240)
#110 n is a, c, g, or t
  ... .
.:::: mist_feature
```

```
+2228 - (243)...(243) + 2238 - n is a, c, g, or t
* 2000 ×
+lll+ misc_feature
+333.+ (246)...(246)
+223 - n 10 a, c, q, or t
1 Lu C 1
+ 0.01 + miss_feature
+ 0.01 + (250)..(052)
+ 0.03 + n is a, c, g, or t
- 2200 -
+221 * misc_feature
+221 * (261)..(261)
+123 - n is a, c, g, or t
+ 220 ×
| 2001 + miss_fcature
| 2011 + (264)..(264)
| 2003 + n is a, c, g, or t
+320 + 
+321 + miss_feature
+222 + (270)..(270)
+233 + n is a, c, q, or t
0.000 c
0.001 c miso_feature
0.00 c (175)..(073)
0.003 c n is a, c, g, or t
+121 + (181)...(732,
+121 + (181)...(732,
+113 - "mm." is "tem" or "agy", n is a, c, g cr t
+ 2.0 +
+.01 + musp_feature
+ 222 + (235)..(.85)
-2232 "nnn" is "ttr" or "ctn", n is a, c, g or t
+ 1200 ×
Plice n is a, c, g, or t
4 <u>1</u> <u>1</u> * 4
 ...! - mist_feature
-... (392)..(294)
. ._ . . . . . .
First "mnn" is "ton" or "agy", n is a, c, g or t
+110 -
+121 - must_feature
+112 - (297)..(297)
+113 - n is a, c, g, or t
· ... · n is a, c, g, or t
- <u>1</u>_1 -
```

```
+221 * misc_feature
+222 * (312)..(312)
+233 * n is a, c, g, or t
+ 0.1 + misd_feature
+ 2.1 + (31*)..(31*)
Allah n is a, c, q, or t
+ 220 ×
+331 + misd_feature
+133 + (324) .. (324)
+1334 n is a, c, g, or t
× 200×
+221 + mise_feature
+222 + (330)..(330)
+2230 n is a, c, g, or t
:000
+001 - misc_feature
+000 - (333)..(333)
+003 - n is a, c, g, or t
+320 + +321 + misc_feature +322 + (336) . (336) +325 + n is a, c, g, or t
*1.20×
.... misc_feature
.... (345)..(346)
+213 - n is a, c, g, or t
+2200
+221 + misc_feature
+222 + (348)..(348)
+222 + n is a, c, g, or t
+ 220 +
+ 221 + miss_feature
+212 + (351) ... (351)
+129 / n is a, c, g, in t
1. 1. 1. 1. 1.
-Ld1    misd_feature
-Ld2    (357)..(857)
-203    n is a, c, g, cr t
+.lin.
+.hll.+ mist_feature
+.hll.+ (364)..(366)
+.ll3+ "nnn" is "ttr" or "ctn", n is a, c, g or t
·__b n is a, c, g, or t
```

```
- 220h
...1
       misc_feature
. ........
       (382)..(384)
        "nnn" is "ten" or "agy", n is a, c, g or t
· ...........
mis: feature
       (390)..(390)
·223 · n is a, c, g, or t
.120 .
.331 .
.123 ~
       misc_feature (391)..(393)
villa. "nnn" is "ton" or "agy", n is a, c, g or t
< 220 ×
+...ll> misc_feature
\times ... 12 \cdot (394) ... (396)
       "nnn" is "tar" or "tga"
/020 × / 021 · / 021 · / 021 · /
        misc feature
        (400)...(40.1)
        "nmm" is "tar" or "tga"
. _.13 -
+400 - 143
atgaaraann nnnnngtrinn naargennnn gtngengtng enaennnngt neenatginn
                                                                            ·50
                                                                            120
nuntitygenn nncengaytt ytgynnngar cencentaya enggneentg yaargennnn
                                                                            180
uthithogni ayttytäyää ygonaargon ggnnnntgyo araonttygt ntayggnggn
                                                                            240
taynnngcha arnnnaayaa yttyaarnnn gengargayt gyatgegnae ntgyggnggn
                                                                            3.00
gengengang gngaygayee ngenaargen genttyaayn nnnnnearge nnnngenaen
                                                                            360
garbayathg gntaygontg ggonatggtn gtngtnathg tnggngonac nathggnath
                                                                            402
Barnnnttya araanttyac nnnnaargen nnnnnnnnnn nn
\pm 0.16 \pm -144
11
        5:3
+311 + 58
+312 + PRT
+213 + Bos taurus
- 400 · 144
And Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Lys Ala
 Arg Ile Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
 Fine Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala
```

40

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala

- 145
- · 111 · 59
- 112 PFT
- ...l: Artificial
- +1113 + Engineered B-PTI from MARK87
- +400 + 145

And Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Thr Lys Ala

Arg lle lle Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr

Fr.e Val Tyr Gly Gly Thr Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala 35 40 45

Gli Asp Dys Met Arg Thr Cys Gly Gly Ala

- + 210 + 146 + 211 + 58 + 212 + PRT
- + 13 + Artificial
- 120 -
- +223 + Engineered B-PTI from MARK&7
- $+400 \cdot -146$

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Ala Lys Ala

Arg fle fle Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr 20 $$2^{\circ}$$

ine Wal Tyr Gly Gly Ala Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala

The Asp Cys Met Arg Thr Cys Gly Gly Ala

- + 210 + 147 + 211 + 67 + 212 + ERT

- 213 Eos taurus
- 4400 147

Fhe 1	Gln	Thr	Fro	Pro 5	Asp	Leu	Cys		ner71 Leu 10				Arg	Gly 15	Pro
Cys	Lys	Ala	Ala 20	Leu	Leu	Arg	Tyr	Phe	Tyr	Asn	Ser	Thr	Ser 30	Asn	Ala
Cys	Glu	Pro 35	Fhe	Thr	Туг	Gly	Gly 40	Әуз	Gln	Gly	Asn	Asn 45	Asn	Asn	Phe
Glu	Thr 50				Cys						Pro 60	Pro	Gln	Gln	Thr

Asp Lys Ser 65

H2105 148 +3110 60 +3120 PRT +3130 Bos taurus

-14CO:- 148

Thr Glu Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys 15 10

Lys Ala Ala Met Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Phe Cys ± 0

Glu Thr Phe Mal Tyr Gly Gly Cys Arg Ala Lys Ser Asn Asn Phe Lys

Ser Ala Glu Asp Cys Met Arg Thr Cys Gly Gly Ala 50

H210 - 149 HL11 + 58 HL12 + PRT HL13 + Artificial

-12.20

4223 - Semisynthetic BPTI, TSCH87

-1400 - 143

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala

Arg The The Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr $\frac{20}{20}$

Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala

- -.10 .150
- 111 58
- $\pm ..12 \pm -$ PET
- +513 Artificial
- 1300 ·
- -123 · Semisynthetic BPTI, TSCH87
- +400 150

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Gly Ala

Arg lle lle Arg Tyr Phe Tyr Asr. Ala Lys Ala Gly Leu Cys Gln Thr

Fine Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala

Giu Asp Cys Met Arg Thr Cys Gly Gly Ala 50 55

- +210 151
- + 11 + 58 + 112 + PRC
- +313 Artificial
- 220 -
- +113 · Semisynthetic BPTI, TSCH87
- +400 + 151

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Ala Ala 10

Ary Ile Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr

ine Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala 35 40 45

Ha Asp Cys Met Arg Thr Cys Gly Gly Ala

- +010 + 152 +111 + 53 +112 + PRT -113 + Artificial
- . 121 .
- -223 · Semisynthetic BPTI, TSCH87

<400> 152

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Leu Ala

Arg Ile Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr

The Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala 40

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala

- +2105 153 +2115 58 +2125 PRT

- +113: Antificial
- 120
- -223 Semisynthetic BPTI, TSCH87
- -400 153

And Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Ile Ala

Ary Ile Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr

The Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala 35 -40 -45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala

- +1010 x 154 +1011 + 58 +1012 + PEC +1013 + Arrificial
- 40.26 +
- 8223 Engineered BPTI, AUER87
- <400. 154

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Lys Ala

Arg Ile Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr 25 20

Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala Page 65

Glu Asp Cys Glu Arg Thr Cys Gly Gly Ala 50 55

+12100 155

+ 0.110 - 60

-0120 PRT

+ 0130 Dendroaspis polylepis polylepis

+4000 155

Gln Pro Leu Arg Lys Leu Cys Ile Leu His Arg Asn Pro Gly Arg Cys 1 5 10 15

Tyr Gln Lys Ile Pro Ala Phe Tyr Tyr Asn Gln Lys Lys Lys Gln Cys 20 25 30

Glu Gly Fr.e Thr Trp Ser Gly Cys Gly Gly Asn Ser Asn Arg Phe Lys 35 40 45

Thr Ele Glu Glu Cys Arg Arg Thr Cys Ile Arg Lys 80 60

110 - 156

· 211 · 57

· L12 · PRT

+.13 + Dendroaspis polylepis polylepis

 $+400 \times -156$

Ala Ala Lys Tyr Cys Lys Leu Pro Leu Arg Ile Gly Pro Cys Lys Arg I 5 10 15

Lys lle Fro Ser Phe Tyr Tyr Lys Trp Lys Ala Lys Gln Cys Leu Pro 20 25 30

Five Asp Tyr Ser Gly Cys Gly Gly Asn Ala Asn Arg Phe Lys Thr Ile $\frac{35}{2}$

Glu Glu Cys Arg Arg Thr Cys Val Gly

+310+ 157

- 211 - 57

+212 + PRT

+213 + Hemachatus hemachates

+.400 - 157

Arg Fro Asp Phe Cys Glu Leu Pro Ala Glu Thr Gly Leu Cys Lys Ala

```
Ladner7L.ST25.txt
Tyr Ile Arg Ser Phe His Tyr Asn Leu Ala Ala Gln Gln Cys Leu Gln
```

The Ile Tyr Gly Gly Cys Gly Gly Asn Ala Asn Arg Phe Lys Thr Ile 35 40 45

Asp Glu Cys Arg Arg Thr Cys Val Gly 50

- +210> 158
- + 111 + 57 + 112 + PRT
- · 213 Naja rivea
- 400 < 155</p>

Arg Pro Arg Phe Cys Glu Leu Pro Ala Glu Thr Gly Leu Cys Lys Ala 10 $^{\circ}$ $^{\circ}$

Arg The Arg Ser Phe His Tyr Asn Arg Ala Ala Gln Gln Cys Leu Glu

Fine the Tyr Gly Gly Cys Gly Gly Asn Ala Asn Arg Phe Lys Thr The 35 40 45

Asp Glu Cys His Arg Thr Cys Val Gly 55

- +210 + 150 +211 + 60 +210 + PFT +213 + Vipera russelli

<400 · 15∌

His Asp Arg Pro Thr Phe Cys Asn Leu Pro Pro Glu Ser Gly Arg Cys

Arg Gly His Ile Arg Arg Ile Tyr Tyr Asn Leu Glu Ser Asn Lys Cys 20 25 30

Lys Val Free Phe Tyr Gly Gly Cys Gly Gly Asn Ala Asn Asn Phe Glu 3%

Thr Arg Amp Glu Cys Arg Glu Thr Dys Gly Gly Lys

- -212 161
- *111 · 64 · 112 · PF.T
- · _13 · Caretta sp.

4400 - 160

Glx Gly Asp Lys Arg Asp Ile Cys Arg Leu Pro Pro Glu Gln Gly Pro 1 5 10 15

Cys Lys Gly Arg Leu Pro Arg Tyr Phe Tyr Asn Pro Ala Ser Arg Met 20 25 30

Cys Glu Ser Phe Ile Tyr Gly Gly Cys Lys Gly Asn Lys Asn Asn Phe 35 40 45

Lys Thr Lys Ala Glu Cys Val Arg Ala Cys Arg Pro Pro Glu Arg Pro 50 60

<210> 161

<211> 58

<212> PRT

<213> Helix pomatia

<400> 161

Glx Gly Arg Pro Ser Phe Cys Asn Leu Pro Ala Glu Thr Gly Pro Cys $1 \hspace{1cm} 5 \hspace{1cm} 10 \hspace{1cm} 15$

Lys Ala Ser Ile Arg Gln Tyr Tyr Tyr Asn Ser Lys Ser Gly Gly Cys 20 25 30

Gln Gln Phe Ile Tyr Gly Gly Cys Arg Gly Asn Gln Asn Arg Phe Asp 35 40 45

Thr Thr Gln Gln Cys Gln Gly Val Cys Val 50 55

<210> 162

<211> 57

<212> PRT

<213> Dendroaspis angusticeps

<400> 162

Ala Ala Lys Tyr Cys Lys Leu Pro Val Arg Tyr Gly Pro Cys Lys Lys 1 5 10 15

Lys Phe Pro Ser Phe Tyr Tyr Asn Trp Lys Ala Lys Gln Cys Leu Pro 20 25 30

Phe Asn Tyr Ser Gly Cys Gly Gly Asn Ala Asn Arg Phe Lys Thr Ile 35 40 45

Glu Glu Cys Arg Arg Thr Cys Val Gly
50 55

<210> 163

- +211: 59
- <212> PRT
- <213> Dendroaspis angusticeps
- <400> 163
- Glx Pro Arg Arg Lys Leu Cys Ile Leu His Arg Asn Pro Gly Arg Cys 1 10 15
- Tyr Asp Lys Ile Pro Ala Phe Tyr Tyr Asn Gln Lys Lys Lys Gln Cys 20 25 30
- Glu Arg Phe Asp Trp Ser Gly Cys Gly Gly Asn Ser Asn Arg Phe Lys 35 40 45
- Thr Ile Glu Glu Cys Arg Arg Thr Cys Ile Gly 50
- <210> 164
- <211> 57
- <212> PRT
- <213> Dendroaspis polylepis polylepis
- <400> 164
- Arg Pro Tyr Ala Cys Glu Leu Ile Val Ala Ala Gly Pro Cys Met Phe 1 $$ 10 $$ 15
- Phe Ile Ser Ala Phe Tyr Tyr Ser Lys Gly Ala Asn Lys Cys Tyr Pro
- Phe Thr Tyr Ser Gly Cys Arg Gly Asn Ala Asn Arg Phe Lys Thr Ile 35 40 45
- Glu Glu Cys Arg Arg Thr Cys Val Val
- <210> 165
- <211> 59
- <212> PRT
- <213> Dendroaspis polylepis polylepis
- -:400> 165
- Lou Gln His Arg Thr Phe Cys Lys Leu Pro Ala Glu Pro Gly Pro Cys 10 15
- Lys Ala Ser Ile Pro Ala Phe Tyr Tyr Asn Trp Ala Ala Lys Lys Cys 20 25 30
- Gln Leu Phe His Tyr Gly Gly Cys Lys Gly Asn Ala Asn Arg Phe Ser 35 40 45

Thr Ile Glu Lys Cys Arg His Ala Cys Val Gly 5.5

<210> 166 <211> 61 <212> PRT <213> Vipera ammodytes

<400> 166

Glx Asp His Pro Lys Phe Cys Tyr Leu Pro Ala Asp Pro Gly Arg Cys

Lys Ala His Ile Pro Arg Phe Tyr Tyr Asp Ser Ala Ser Asn Lys Cys 20 25 30

Asn Lys Phe Ile Tyr Gly Gly Cys Pro Gly Asn Ala Asn Asn Phe Lys

Thr Trp Asp Glu Cys Arg Gln Thr Cys Gly Ala Ser Ala 55

<210> 167

<211> 62
<212> PRT
<213> Vipera ammodytes

<400> 167

Leu Ala Tyr Met Pro Arg Phe Tyr Tyr Asn Pro Ala Ser Asn Lys Cys

Giu Lys Phe Ile Tyr Gly Gly Cys Arg Gly Asn Ala Asn Asn Phe Lys

Thr Trp Asp Glu Cys Arg His Thr Cys Val Ala Ser Gly Ile

<210> 168

<111> 62
<112> PRT
<213> Bungarus fasciatus

<400> 168

Lys Asn Arg Pro Thr Phe Cys Asn Leu Leu Pro Glu Thr Gly Arg Cys

Asn Ala Leu Ile Pro Ala Phe Tyr Tyr Asn Ser His Leu His Lys Cys 20 25 30

Gln Lys Phe Asn Tyr Gly Gly Cys Gly Gly Asn Ala Asn Asn Phe Lys

Thr Ile Asp Glu Cys Gln Arg Thr Cys Ala Ala Lys Tyr Gly 55

<210> 169

<211> 59

<212> PRT

<213> Anemonia sulcata

<400> 169

Ile Asn Gly Asp Cys Glu Leu Pro Lys Val Val Gly Pro Cys Arg Ala

Arg Phe Pro Arg Tyr Tyr Asn Ser Ser Ser Lys Arg Cys Glu Lys

Phe Ile Tyr Gly Gly Cys Gly Gly Asn Ala Asn Asn Phe His Thr Leu 40

Glu Glu Cys Glu Lys Val Cys Gly Val Arg Ser

<210> 170 <211> 56 <212> PRT <213> Homo sapiens

<400> 170

Lys Glu Asp Ser Cys Gln Leu Gly Tyr Ser Ala Gly Pro Cys Met Gly

Met Thr Ser Arg Tyr Phe Tyr Asn Gly Thr Ser Met Ala Cys Glu Thr 25 20

Phe Gln Tyr Gly Gly Cys Met Gly Asn Gly Asn Asn Phe Val Thr Glu

Lys Glu Cys Leu Gln Thr Cys Arg 50

<210> 171

<211> 61

<212> PRT

<213> Homo sapiens

<400> 171

Thr Val Ala Ala Cys Asn Leu Pro Val Ile Arg Gly Pro Cys Arg Ala 1 $$ 10 $$ 15 Page 71

Phe Ile Gln Leu Trp Ala Phe Asp Ala Val Lys Gly Lys Cys Val Leu 30

Phe Pro Tyr Gly Gly Cys Gln Gly Asn Gly Asn Lys Phe Tyr Ser Glu 40

Lys Glu Cys Arg Glu Tyr Cys Gly Val Pro Gly Asp Glu 50 55 60

<210> 172

<211> 60 <212> PRT <213> Bungarus multicinctus

<400> 172

Arg Gln Arg His Arg Asp Cys Asp Lys Pro Pro Asp Lys Gly Asn Cys

Gly Pro Val Arg Ala Phe Tyr Tyr Asp Thr Arg Leu Lys Thr Cys Lys 25 20

Ala Phe Gln Tyr Arg Gly Cys Asp Gly Asp His Gly Asn Phe Lys Thr

Glu Thr Leu Cys Arg Cys Glu Cys Leu Val Tyr Pro

<210> 173

<211> 60

<212> PRT

<213> Bungarus multicinctus

<400> 173

Arg Lys Arg His Pro Asp Cys Asp Lys Pro Pro Asp Thr Lys Ile Cys 10

Gin Thr Val Arg Ala Phe Tyr Tyr Lys Pro Ser Ala Lys Arg Cys Val

Gln Phe Arg Tyr Gly Gly Cys Asp Gly Asp His Gly Asn Phe Lys Ser

Asp His Leu Cys Arg Cys Glu Cys Glu Leu Tyr Arg 50

+:210 × 174

<211≯ 53

:212 - PRT :213 - Bos taurus

<400> 174

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Lys Ala

Lys Met Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Phe Cys Glu Thr 25

Phe Val Tyr Gly Gly Cys Lys Ala Lys Ser Asn Asn Phe Arg Ser Ala

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala

<210> 175 <211> 61

<212> PRT

<213> Tachypleus tridentatus

<400> 175

Thr Glu Arg Gly Phe Leu Asp Cys Thr Ser Pro Pro Val Thr Gly Pro 10

Cys Arg Ala Gly Phe Lys Arg Tyr Asn Tyr Asn Thr Arg Thr Lys Gln 25

Cys Glu Pro Phe Lys Tyr Gly Gly Cys Lys Gly Asn Gly Asn Arg Tyr

Lys Ser Glu Gln Asp Cys Leu Asp Ala Cys Ser Gly Phe

<210> 176

<211> 63 <212> PRT

<213. Bombyk mori

<400 > 176

Asp Glu Pro Thr Thr Asp Leu Pro Ile Cys Glu Gln Ala Phe Gly Asp

Ala Gly Leu Cys Phe Gly Tyr Met Lys Leu Tyr Ser Tyr Asn Gln Glu

Thr Lys Asn Cys Glu Glu Phe Ile Tyr Gly Gly Cys Gln Gly Asn Asp 40

Asn Arg Phe Ser Thr Leu Ala Glu Cys Glu Gln Lys Cys Ile Asn

- <210> 177
- <211> 56
- <212> PRT
- <213> Bos taurus

<400> 177

Lys Ala Asp Ser Cys Gln Leu Asp Tyr Ser Gln Gly Pro Cys Leu Gly

Leu Phe Lys Arg Tyr Phe Tyr Asn Gly Thr Ser Met Ala Cys Glu Thr

Phe Leu Tyr Gly Gly Cys Met Gly Asn Leu Asn Asn Phe Leu Ser Gln 40

Lys Glu Cys Leu Gln Thr Cys Arg

- <210> 178

- <211> 61 <212> PRT <213> Bos taurus

<400> 178

Thr Val Glu Ala Cys Asn Leu Pro Ile Val Gln Gly Pro Cys Arg Ala

Phe Ile Gln Leu Trp Ala Phe Asp Ala Val Lys Gly Lys Cys Val Arg

Phe Ser Tyr Gly Gly Cys Lys Gly Asn Gly Asn Lys Phe Tyr Ser Gln

Lys Glu Cys Lys Glu Tyr Cys Gly Ile Pro Gly Glu Ala

- <210> 179
- <211> 58
- <212> PRT
- <213> Artificial

<220>

<:223> Engineered BPTI (KR15, ME52)

<400> 179

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Arg Ile Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr

Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala 4.0

Glu Asp Cys Glu Arg Thr Cys Gly Gly Ala

<210> 180

<211> 59

<212> PRT

<213> Artificial

<220>

<223> Isoaprotinin G-1

<400> 180

Glw Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Lys

Ala Arg Met Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln

Pro Phe Val Tyr Gly Gly Cys Arg Ala Lys Ser Asn Asn Phe Lys Ser 35 40

Ala Glu Asp Cys Met Arg Thr Cys Gly Gly Ala 5.0

<210> 181 <211> 58 <212> PRT

<213> Artificial

<220>

<223> Isoaprotinin 2

<400> 181

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Lys Ala

Arg Ile Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Pro

Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ser

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala

<210> 182

<111> 58 <112> PRT

<213> Artificial

<12.20%

<223> Isoaprotinin G-2

<400> 182

Arg Fro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Lys Ala

Arg Met Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Pro 25

Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala

<210> 183

<211> 58

<212> PRT

<213> Artificial

<220>

<223> Isoaprotinin 1

<400> 183

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Lys Ala

Lys Met Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Phe Cys Glu Thr

Phe Val Tyr Gly Gly Cys Lys Ala Lys Ser Asn Asn Phe Arg Ser Ala

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala 50

<1210 - 184

<211> 13

4212 - DNA

<213 - Artificial

<13.30 ···

<223 · synthetic, SfiI restriction site

4:2233 ×

+1213 n is a, c, g or t

<433> 184

ggccnnrnng gcc 13

<210> 185 <211> 539 <212> DNA <213> Artificial <220> <223> synthetic, pbd gene pbd mod10 29 III 88 <400> 185 60 cggaccgtat ccaggettta cactttatge ttccggetcg tataatgtgt ggaattgtga geggataaca attectagga ggeteactat gaagaaatet etggttetta aggetagegt 120 180 tyctytogog accotggtac cgatgotgto ttttgctcgt ccggatttet gtotcgagco gccatatact gggccctgca aagcgcgcat catccgttat ttctacaacg ctaaagcagg 240 cotgtgccag acctttgtat acggtggttg ccgtgctaag cgtaacaact ttaaatcggc 300 360 cgaagattgc atgcgtacct gcggtggcgc cgctgaaggt gatgatccgg ccaaagcggc ctttaactct ctgcaagctt ctgctaccga atatatcggt tacgcgtggg ccatggtggt 420 480 gg:tatcg:t ggtgctacca tcggtatcaa actgtttaag aaatttactt cgaaagcgtc ttaatagtga ggttaccagt ctaagcccgc ctaatgagcg ggcttttttt ttcctgagg 539 <210> 186 <211> 539 <212> DNA <213 > Artificial <220> DNA/Protein of Table 25 <223> <220> <221> CDS (39)..(481) <222> <400> 186 oggasogtat ocaggottta cactttatgo ttooggotog tataatgtgt ggaattgtga goggataaca attoctagga ggotcact atg aag aaa tot otg gtt ott aag 112Met Lys Lys Ser Leu Val Leu Lys get age gtt get gte geg ace etg gta eeg atg etg tet tit get egt 160 Ala Ser Val Ala Val Ala Thr Leu Val Pro Met Leu Ser Phe Ala Arg 1.0 15 20 208 deg gat the tgt etc gag deg dea tat act ggg dec tge aaa geg dge Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Lys Ala Arg 30 25 256 ato ato ogtitat the tac age get aga ged etg tge dag about t Ile Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr Phe gta tac ggt ggt tgc cgt gct aag cgt aac aac ttt aaa tcg gcc gaa 304 Page 77

Ladner7L.ST25.txt Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala Glu 65 gat tgc atg cgt acc tgc ggt ggc gcc gct gaa ggt gat gat ccg gcc 352 Asp Cys Met Arg Thr Cys Gly Gly Ala Ala Glu Gly Asp Asp Pro Ala 80 400 aaa geg gee ttt aac tet etg eaa get tet get ace gaa tat ate ggt Lys Ala Ala Phe Asn Ser Leu Gln Ala Ser Ala Thr Glu Tyr Ile Gly 90 95 tac geg tgg gec atg gtg gtg gtt atc gtt ggt get acc atc ggt atc 448 Tyr Ala Trp Ala Met Val Val Val Ile Val Gly Ala Thr Ile Gly Ile 115 105 110 501 asa ctg ttt aag asa ttt act tcg asa gcg tct taatagtgag gttaccagtc Lys Leu Phe Lys Lys Phe Thr Ser Lys Ala Ser 130 539 taagcccgcc taatgagcgg gcttttttt tcctgagg <210> 187 <211> 131 <212> PRT <213> Artificial <220> <223> DNA/Protein of Table 25 <400> 137 Met Lys Lys Ser Leu Val Leu Lys Ala Ser Val Ala Val Ala Thr Leu Val Pro Met Leu Ser Phe Ala Arg Pro Asp Phe Cys Leu Glu Pro Pro 20 Tyr Thr Gly Pro Cys Lys Ala Arg Ile Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr Phe Val Tyr Gly Gly Cys Arg Ala Lys 60 50 55 Arg Asn Asn Phe Lys Ser Ala Glu Asp Cys Met Arg Thr Cys Gly Gly 65 Ala Ala Glu Gly Asp Asp Pro Ala Lys Ala Ala Phe Asn Ser Leu Gln Ala Ser Ala Thr Glu Tyr Ile Gly Tyr Ala Trp Ala Met Val Val Val 100 Ile Val Gly Ala Thr Ile Gly Ile Lys Leu Phe Lys Lys Phe Thr Ser

Ladner/L.Sizs.txt Lys Ala Ser 130	
<210> 188 <211> 176 <212> DNA <213> Artificial	
<220> <223> synthetic, Table 26 DNA_seq1	
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aattytgage ggataacaat teetagggee geteettega aagegtetta atagtgaggt	120
taccagtcta agcccgccta atgagcgggc tttttttttc ctgaggcagg tgagcg	176
<210> 189 <211> 176 <212> DNA <213> Artificial	
<220><223> synthetic, Table 27 DNA_synth1, upper strand	
<400> 189 cogtocgtog gaccgtated aggetttada etttatgett deggetegta taatgtgtgg	60
aattytgage ggataacaat teetagggee geteettega aagegtetta atagtgaggt	120
taccagtota agocogocta atgagogggo ttttttttto otgaggoagg tgagog	176
<210> 190 <211> 100 <212> DNA <213> Artificial	
<220> <223> synthetic, Table 27 DNA_synth1, lower strand; oligo #4	
<400> 190 cgotoacctg cotoaggaaa aaaaaagcco gotoattagg ogggottaga otggtaacct	60
dabhattaag acgotttoga aggagoggoo otaggaattg	100
<210 > 191 <111 > 171 <212 > DNA <113 > Artificial	
<220 > K223 - synthetic, Table 28 DNA_Seq 2/Protein	
<pre><220* <221* CDS <222* (25)(162)</pre>	
<400> 131 Page 79	

Ladner7L.ST25.txt gcaccaacgc ctaggaggct cast atg aag aaa tct ctg gtt ctt aag gct Met Lys Lys Ser Leu Val Leu Lys Ala 1 5	51
age gtt get gte geg ace etg gta eeg atg etg tet ttt get egt eeg Ser Val Ala Val Ala Thr Leu Val Pro Met Leu Ser Phe Ala Arg Pro 10 15 20 25	99
gat ttc tgt ctc gag ccg cca tat act ggg ccc tgc aaa gcg cgc atc Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Lys Ala Arg Ile 30 35 40	147
atc cgt act tcg aaa gcggotgcg Ile Arg Thr Ser Lys 45	171
<210> 192 <211> 46 <212> PRT <213: Artificial	
<220> <223> synthetic, Table 28 DNA_Seq 2/Protein	
<400> 192	
Met Lys Lys Ser Leu Val Leu Lys Ala Ser Val Ala Val Ala Thr Leu 1 5 10 15	
Val Pro Met Leu Ser Phe Ala Arg Pro Asp Phe Cys Leu Glu Pro Pro 20 25 30	
Tyr Thr Gly Pro Cys Lys Ala Arg Ile Ile Arg Thr Ser Lys 35 40 45	
<210> 193 <211> 171 <212> DNA <213> Artificial	
<220> <223> synthetic, Table 29 DNA_Synth2, upper strand	
<400> 193 gbacbaacgo ctaggaggot cabtatgaag aaatototgg tiottaaggo tagogitgot	60
gtogogacoo tggtaccgat gctgtctttt gctcgtccgg atttctgtct cgagccgcca	120
tahabtgggo cotgoaaago gogoatoato ogtaottoga aagoggotgo g	171
<210 > 194 <211 > 96 <212 > DNA <213 > Artificial	
<pre><020 · <023 · Oligo #6, hybridizes to DNA_synth2 in Table 29</pre>	
<400. 194 Page 80	

Page 80

Ladner7L.ST25.txt
egeageeget ttegaagtae ggatgatgeg egetttgeag ggeecagtat atggeggete 60
gagacagaaa teeggaegag caaaagacag categg 96
<210> 195 <211> 165 <212> DNA <213> Artificial
<220> <223> synthetic, Table 30, DNA_seq3/protein
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aaa tog goo gaa gat tgo atg ogt acc tgo ggt ggo goo got gaa ttt Lys Ser Ala Glu Asp Cys Met Arg Thr Cys Gly Gly Ala Ala Glu Phe 35 40 45
act tog aaa gogtogoog 165 Thr Ser Lys
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Thr Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser 20 25 30
Ala Glu Asp Cys Met Arg Thr Cys Gly Gly Ala Ala Glu Phe Thr Ser 35 40 45
Lys
<210 > 197 <211 > 165

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<212> DNA <213> Artificial	
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titgtatacg gtggttgccg tgctaagcgt aacaacttta aatcggccga agattgcatg	120
egtacetgeg gtggegeege tgaatttact tegaaagegt egeeg	165
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cgatttaaag ttgttacgct tagcacggca accaccg	97
<210> 199 <211> 168 <212> DNA <213> Artificial	
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tot otg daa got tot got acc gaa tat atc ggt tac gog tgg god atg Ser Leu Gln Ala Ser Ala Thr Glu Tyr Ile Gly Tyr Ala Trp Ala Met 15 20 25 30	99
gtg gtg gtt atc gtt ggt gct acc atc ggt atc aaa ctg ttt aag aaa Val Val Ile Val Gly Ala Thr Ile Gly Ile Lys Leu Phe Lys Lys 35 40 45	147
ttt act tog aaa gogtogggo Phe Thr Ser Lys 50	168
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Gln Ala Ser Ala Thr Glu Tyr Ile Gly Tyr Ala Trp Ala Met Val Val 20 25 30
Val Ile Val Gly Ala Thr Ile Gly Ile Lys Leu Phe Lys Lys Phe Thr 35 40 45
Ser Lys 50
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getictgeta cogaatatat eggttaegeg tgggccatgg tggtggttat egttggtgct 120
abbatoggta toaaactgtt taagaaattt acttogaaag ogtottga 168
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aabbacbacb atggcccacg cgtaaccgat ata 93
<pre><110: 203 <211> 41 <212> PRT <113> Artificial</pre>
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Gly Maa Cys Gln Thr Phe Xaa Tyr Gly Gly Cys Arg Ala Lys Arg Asn
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Asn Phe Lys Ser Xaa Glu Asp Cys Met
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\times (22... \times (52)...(53))
\times 223 \cdot n is a, c, g, or t
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                                                                               60
                                                                              120
tgccagacct tcnnktacgg tggttgccgt gctaagcgta acaactttaa atctnnkgag
                                                                              130
gattgcatgc
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                                                                               60
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ctaacgtacg cacccacc
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Let Glu Pro Pro Tyr Thr Gly Pro Cys Lys Ala Asp Ile Gln Arg Tyr
Phe Tyr Asn Ala Lys Glu Gly Leu Cys Gln Thr Phe Ser Tyr Gly Gly
                                    25
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Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Trp Glu Asp Cys Met Arg

35 Thr Cys Gly Gly Ala 50 <210> 207 <211> 156 <212> DNA <213> Artificial <220> synthetic, Table 35 DNA, set #2 of BPII2.1 <223> <400> 207 stegagosgo catatactgg gocotgoaaa goggatatoo agogttattt otacaacgot 60 gagggeetgt gecagacett ttegtaeggt ggttgeegtg etaagegtaa eaactttaaa 120 156 togtgggaag attgcatgcg tacctgcggt ggcgcc <210> 208 <211> 41 <212> PRT <213> Artificial <220> <123> synthetic, Table 39 protein library set #2 BPII2.2 <220 > <221> misc_feature <2222> (4)..(4) <2003> Maa can be any naturally occurring amino acid <220> <221> misc_feature <222><223> (7)..(7)Maa can be any naturally occurring amino acid <220> <221> misc_feature <2225 (9). $\overline{\ \ }$ (10) <2235 Maa can be any naturally occurring amine acid <0200> <121> misd_feature $<\!\!1222\!\!>-(17)^{\top}_{-+}(17)$ $<\!\!1232\!\!>-$ Maa can be any naturally occurring amino acid <22205 <0.015 <0.005 misc_feature (20)..(21) <7130 Maa can be any naturally occurring amino acid くここりン Page 86

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Giy Pro Cys Xaa Ala Asp Xaa Gln Xaa Xaa Phe Tyr Asn Ala Lys Glu
                                     10
Maa Leu Cys Maa Kaa Phe Ser Tyr Gly Gly Cys Arg Ala Lys Arg Asn
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Asn Phe Lys Ser Trp Xaa Asp Cys Met
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tgtgcnnknn kttttegtae ggtggttgee gtgetaageg taacaacttt aaategtggn
                                                                      120
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nkgattgcat gc
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<211> 61
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61
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Phe Tyr Asn Ala Lys Glu Phe Leu Cys Ser Ala Phe Ser Tyr Gly Gly 20 25 30
Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Trp Gln Asp Cys Met Arg 35 40 45
Thr Cys Gly Gly Ala 50
<pre><210></pre>
<220> <223> synthetic, Table 40 DNA set #2 BPII2.2
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asagagttte tgtgetetge tttttegtae ggtggttgee gtgetaageg taacaacttt 120
asstogtggc aggattgcat gcgtacctgc ggtggcgcc 159
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Phe Tyr Asn Ala Lys Xaa Phe Xaa Cys Ser Xaa Phe Xaa Tyr Gly Gly
Cys Arg Ala Lys
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マン102 214
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KIZIZW DNA
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Hollow in is a, c, g, or t
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       (87)..(88)
:1223> n is a, c, g, or t
<220>
<221> misc feature
<:222>
       (93)..(94)
<223> n is a, c, g, or t
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<220>
<223> synthetic, Table 41 lower strand vg DNA
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                                                                            60
gaccggc
                                                                            67
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<111> 53
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<213> synthetic, Table 42 protein from set #2 BPII2.3
<440€ 216
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Gln Phe Met Cys Ser Leu Phe His Tyr Gly Gly Phe Tyr Asn Ala Lys 20 25 30

Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Trp Gln Asp Cys Met Arg 35 40 45

Thr Cys Gly Gly Ala

<210> 217 <211> 159

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<210> 218 <211> 583

<212> DNA

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<220 >

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<400> 218

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<210> 219

<211> 584

<210>

とりつる~	synthetic.	Tabla	101h
	SVMI DELIC.	14010	1111

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atctctggtt	cttaaggcta	gegttgetgt	egegaecetg	gtacctatgt	tgtccttcgc	180
togtooggat	ttctgtctcg	agccaccata	cactgggccc	tgcaaagcgc	gcatcatccg	240
ctatttctac	aatgctaaag	caggcctgtg	ccagacettt	gtatacggtg	gttgccgtgc	300
taagcgtaac	aactttaaat	cggccgaaga	ttgcatgcgt	acctgcggtg	gcgccgctga	360
aggtgatgat	ccggccaagg	cggccttcaa	ttctctgcaa	gcttctgcta	ccgagtatat	420
tggttacgcg	tgggccatgg	tggtggttat	cgttggtgct	accatcggga	tcaaactgtt	480
caagaagttt	acttcgaagg	cgtcttaatg	atagggttac	cagtctaagc	ccgcctaatg	540
agegggettt	ttttttatcg	agacctgcag	gtcgaccggc	atgc		584

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<212> PRT <213> Artificial

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<400> 220

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Pro Tyr Thr Gly Pro Cys Lys Ala Arg Ile Ile Arg Tyr Phe Tyr Asn

Ala Lys Ala Gly Leu Cys Gln Thr Phe Val Tyr Gly Gly Cys Arg Ala

Lys Arg Asn Asn Phe Lys Ser Ala Glu Asp Cys Met Arg Thr Cys Gly

Gly Ala Ala Glu Gly Asp Asp Pro Ala Lys Ala Ala Phe Asn Ser Leu 90

Gln Ala Ser Ala Thr Glu Tyr Ile Gly Tyr Ala Trp Ala Met Val Val 100 105

Val Ile Val Gly Ala Thr Ile Gly Ile Lys Leu Phe Lys Lys Phe Thr 115 120 125

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Ser Lys Ala Ser 130					
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<220> <223> synthetic, Table 102a DNA					
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gentigetgt egegaedetg gtacetatgt tgteettege tegteeggat ttetgteteg 180					
agecaccata cactgggccc tgcaaagege gcatcateeg etatttetac aatgctaaag 240					
caggeotyty coagacettt gtatacggtg gttgccgtgc taagcgtaac aactttaaat 300					
cggccgaaga ttgcatgcgt acctgcggtg gcgccgctga aggtgatgat ccggccaagg 360					
eggeetteaa ttetetgeaa gettetgeta eegagtatat tggttaegeg tgggeeatgg 420					
tggtggttat cgttggtgct accateggga tcaaactgtt caagaagttt acttcgaagg 480					
egtettaatg atagggttae eagtetaage eegeetaatg agegggettt ttttttateg 540					
agadotgoag goatgo 550					
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<220> <223> synthetic, Table 102b protein					
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Lou Val Pro Met Leu Ser Phe Ala Arg Pro Asp Phe Cys Leu Glu Pro 20 25 30					
Pro Tyr Thr Gly Pro Cys Lys Ala Arg Ile Ile Arg Tyr Phe Tyr Asn 35 40 45					
Ala Lys Ala Gly Leu Cys Gln Thr Phe Val Tyr Gly Gly Cys Arg Ala 50 60					
Lys Arg Asn Asn Phe Lys Ser Ala Glu Asp Cys Met Arg Thr Cys Gly 65 70 75 80 Page 93					

Gly Ala Ala Glu Gly Asp Asp Pro Ala Lys Ala Ala Phe Asn Ser Leu 85 Gln Ala Ser Ala Thr Glu Tyr Ile Gly Tyr Ala Trp Ala Met Val Val 100 105 110 Val Ile Val Gly Ala Thr Ile Gly Ile Lys Leu Phe Lys Lys Phe Thr 115 Ser Lys Ala Ser 130 <210> 223 <211> 563 <212> DNA <213> Artificial <220> <223> synthetic, Table 102b DNA <400> 223 60 ggatoctota gagtoggott tacactttat gottooggot ogtataatgt gtggaattgt gagogotoac aattgagoto agaggottac tatgaagaaa tototggtto ttaaggotag 120 eqtiquique gegaccetgg tacctatgtt gicciteget egiccggatt tetgictega 180 gosascatae astgggseet geaaagegeg cateateege tatttetaea atgetaaage 240 aggestigting cagasetting talacgging tigeograph aagegraaca actitaaate 300 360 ggccgaagat tgcatgcgta cctgcggtgg cgccgctgaa ggtgatgatc cggccaaggc 420 ggccttcaat tetetgeaag ettetgetae egagtatatt ggttaegegt gggccatggt ggtggttate gttggtgeta ceategggat caaactgtte aagaagttta cttegaagge 480 gtottaatga tagggttacc agtotaagco ogootaatga gogggotttt tttttatoga 540 563 gacctgcagg togaccggca tgc <210≥ 224 <211> 132 <212> PRT <213> Artificial < 0.20 > <223> synthetic, Table 103 protein <400.+ 214</pre> Phe Met Lys Lys Ser Leu Val Leu Lys Ala Ser Val Ala Val Ala Thr

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Leu Val Pro Met Leu Ser Phe Ala Arg Pro Asp Phe Cys Leu Glu Pro

Pro Tyr Thr Gly Pro Cys Lys Ala Arg Ile Ile Arg Tyr Phe Tyr Asn 35 40 45						
Ala Lys Ala Gly Leu Cys Gln Thr Phe Val Tyr Gly Gly Cys Arg Ala 50 55 60						
Lys Arg Asn Asn Phe Lys Ser Ala Glu Asp Cys Met Arg Thr Cys Gly 65 70 75 80						
Gly Ala Ala Glu Gly Asp Asp Pro Ala Lys Ala Ala Phe Asn Ser Leu 85 90 95						
Gln Ala Ser Ala Thr Glu Tyr Ile Gly Tyr Ala Trp Ala Met Val Val 100 105 110						
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Ser Lys Ala Ser 130						
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coetggtade tatgttgted ttegetogte eggatttetg tetegageda coatacaetg	130					
ggoodtgcaa agogogoato atoogotatt totacaatgo taaagoaggo otgtgccaga	240					
cottiguata egytggitge egigetaage giaabaacit taaaleggee gaagatigea	300					
tgegtacetg eggtggegee getgaaggtg atgateegge caaggeggee tteaattete 3	360					
tycaagette tgotacegag tatattggtt acgegtggge catggtggtg gttategttg	120					
gigotaccat ogggatcaaa otgitcaaga agittacito gaaggogici taatgatagg 4	180					
ghtaccaghe taagecegee taatgagegg gettttttt tatega 5	526					
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K12C)

<223>	oligo #801 Table 104-105	
	226 acac tttatgette eggetegtat aatgtgtgga attgtgageg etcacaattg	60
agetea	āā	68
<210> <211> <212> <213>	207 67 DNA Artificial	
<220> <223>	oligo #802 Table 104-105	
<400> aggett	227 acta tgaagaaatc totggttott aaggotagog ttgotgtogo gaccotggta	60
cctatg	t	67
<212>	228 70 DNA Artificial	
<220> <223>	oligo #803 Table 104-105	
<400> tgtcct	228 tege tegteeggat ttetgteteg agecaceata caetgggeee tgeaaagege	60
gdatda	teeg	70
<210> <211> <212> <213>	229 67 DNA Artificial	
<220> <223>	oligo #804 Table 104-105	
<400> ctattt	229 ctac aatgctaaag caggcetgtg ceagacettt gtataeggtg gttgeegtge	60
taagog	t	67
<210> <211> <212> <213>	76	
<220> <223>	oligo #805 Table 104-105	
<4000 aacaac	230 ttta aateggeega agattgeatg egtacetgeg gtggegeege tgaaggtgat	60
gatecg	deca addedd	76

	231 67 DNA Artificial	
+1220> +1333>	cligo #806 Table 104-105	
<400> cottcaa	231 atto totgoaagot totgotacog agtatattgg ttacgogtgg gocatggtgg	60
tggttat		б 7
<212>	232 69 DNA Artificial	
<220% <223%	cligo #807 Table 104-105	
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atagggt	tta	69
<212>	133 38 DNA Artificial	
<220><223>	cligo #808 Table 104-105	
	233 taag ooogootaat gagogggott ttttttta	38
<212>	234 29 ENA Artificial	
<220x <223x	oligo #810 Table 104-105	
kt400.2 togataa	234 agaa aaaagcccgc tcattaggc	29
<210 × <211 × <212 × <213 ×	र्स <u>9</u>	
K220 + K223 +	oligo #811 Table 104-105	
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gatadd	gat	69

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<210>	236	
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	LINA	
<313 ≥	Artificial	
2000		
<220×	oligo #812 Table 104-105	
~	011g0 #012 Table 104 105	
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	acca acgataacca ccaccatgge ccacgegtaa ccaatatact eggtageaga	60
,,,,,		
agett		65
	237	
<211> <212>	76 END	
	Artificial	
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<220>		
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K2200	cligo #815 Table 104-105	
	Cityo moto table tod too	
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Pro Val	l Thr Lys Ala Arg Thr 20	
+:210x +:211x +:212x +:213x	250 27 PRT Artificial	

Page 100

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Ala Gly Thr Ala Asn Ala Ala Glu
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gauyacaaaa otttagatog ttacgotaac tatgagggtt gtotgtggaa tgotacaggo 180
gttytagttt gtactggtga cgaaactcag tgttacggta catgggttcc tattgggctt 240 Page 103

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caatatttac cttccctccc	tcaatcggtt	gaatgtegee	cttttgtctt	tagcgctggt	1140
aaaccatatg aattttctat	tgattgtgac	aaaataaact	tattccgtgg	tgtctttgcg	1200
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Gly Ala Ala Glu Thr Val	
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Lys Ala Arg Ile Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys 35 40 45	

Ladner7L.ST25.txt Ser Ala Glu Asp Cys Met Arg Thr Cys Gly Gly Ala Gly Ala Ala Glu 65 70 75 80 80

Thr Val Glu Ser

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aatgagggtg	gtggctctga	gggtggcggt	tctgagggtg	gcggttctga	gggtggcggt	240
actaaacctc	ctgagtacgg	tgatacacct	attccgggct	atacttatat	caacsctctc	300
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gagtotoago	ctcttaatac	tttcatgttt	cagaataata	ggttccgaaa	taggcagggg	420
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gotoaagtog	gtgacggtga	taattcacct	ttaatgaata	atttccgtca	atatttacct	1020
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ctt aag get age gtt get gte geg ace etg gta eet atg ttg tee tte Leu Lys Ala Ser Val Ala Val Ala Thr Leu Val Pro Met Leu Ser Phe 10 15 20	161												
got ogt oog gat tto tgt oto gag oca coa tac act ggg occ tgc aaa Ala Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Lys 25 30 35	209												
gog ogs atc atc ogs tat ttc tas aat got aaa goa ggo otg tgo oag Ala Arg Ile Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln 40 45 50	257												
ace ttt gta tac ggt ggt tge cgt gct aag cgt aac aac ttt aaa tcg Thr Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser 55 60 65 70	305												
god gaa gat tgc atg cgt acc tgo ggt ggc gcc gct gaa ggt gat gat Ala Glu Asp Cys Met Arg Thr Cys Gly Gly Ala Ala Glu Gly Asp Asp 75 80 85	353												
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coggoatgo	567												
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K22G0 K22G0 synthetic protein of Table 112, DNA													
Met Lys Lys Ser Leu Val Leu Lys Ala Ser Val Ala Val Ala Thr Leu Page 107													

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Val	Pro	Met	Leu 20	Ser	Phe	Ala	Arg	Pro 25	Asp	Phe	Cys	Leu	Glu 30	Pro	Pro
Tyr	Thr	Gly 35		Cys	Lys	Ala	Arg 40	Ile	Ile	Arg	Tyr	Phe 45	Tyr	Asn	Ala
Lys	Ala 50	Gly	Leu	Cys	Gln	Thr 55	Phe	Val	Tyr	Gly	Gly 60	Cys	Arg	Ala	Lys
Arg 65	Asn	Asn	Phe	Lys	Ser 70	Ala	Glu	Asp	Cys	Met 75	Arg	Thr	Cys	Gly	Gly 80
Ala	Ala	Glu	Gly	Asp	Asp	Pro		Lys		Ala	Phe	Asn	Ser	Leu	Gln

90 95 85

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gea ato tha dog tha ctg thit add dot gtg aca aaa god ogt dog gat 164 Ala Leu Leu Fro Leu Leu Phe Thr Pro Val Thr Lys Ala Arg Pro Asp

212 tto tyt oto gag doa doa tad act ggg doo tgd aaa geg ego ato ato Phe Cys Leu Slu Pro Pro Tyr Thr Gly Pro Cys Lys Ala Arg Ile Ile

age tat the tae aat get aaa gea gge etg tge eag ace tit gta tae 260 Page 108

Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr Phe Val Tyr	
40 45 50 ggt ggt tge egt get aag egt aac aac ttt aaa teg gee gaa gat tge	308
Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala Glu Asp Cys 60 65 70	
atg ogt ace tgc ggt ggc gcc gct gaa ggt gat gat ccg gcc aag gcg Met Arg Thr Cys Gly Gly Ala Ala Glu Gly Asp Asp Pro Ala Lys Ala 75 80 85	356
gcc ttc aat tct ctg caa gct tct gct acc gag tat att ggt tac gcg Ala Phe Asn Ser Leu Gln Ala Ser Ala Thr Glu Tyr Ile Gly Tyr Ala 90 95 100	404
tgg gcc atg gtg gtt atc gtt ggt gct acc atc ggg atc aaa ctg Trp Ala Met Val Val Val Ile Val Gly Ala Thr Ile Gly Ile Lys Leu 105 110 115	452
tto aag aag tit act tog aag gog tot taatgatagg gitaccagto Phe Lys Lys Phe Thr Ser Lys Ala Ser 120 125	499
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aaa gog Lys Als	g ege Arg 35	atc Ile	atc Ile	cgc Arg	tat Tyr	ttc Phe 40	tac Tyr	aat Asn	gct Ala	aaa Lys	gca Ala 45	ggc Gly	ctg Leu	tgc Cys	144
cag acc Gln Thr 50															192
tog god Ser Ala 65	gaa Glu	gat Asp	tyc Cys	atg Met 70	cjt Arg	acc Thr	tgc Cys	ggt Gly	ggc Gly 75	gcc Ala	ggc Gly	gcc Ala	gct Ala	gaa Glu 30	240
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aac gto Asn Val	tgg Trp	aaa Lys 100	gac Asp	gac Asp	aaa Lys	act Thr	tta Leu 105	gat Asp	ogt Arg	tac Tyr	gct Ala	aac Asn 110	tat Tyr	gag Glu	336
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act dag Thr Gln 130	cys														432
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ggo tat Gly Tyr								Gly		Tyr					57¢

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aat Asn	toc Ser	caa Gln	atg Met	got Ala 405	caa Gln	gtc Val	agt Gly	gac Asp	ggt Gly 410	gat Asp	aat Asn	tca Ser	cct Pro	uta Leu 415	atg Met	1248
								toc Ser 425								1296
								aaa Lys	Pro		Glu					1344

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Glu	Gln	Asn 195	Pro	Ala	Asn	Pro	Asn 200	Pro	Ser	Leu	Glu	Glu 205	Ser	Gln	Pro
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Ala 225	Leu	Thr	Val	Tyr	Thr 230	Gly	Thr	Val	Thr	Gln 235	Gly	Thr	Asp	Pro	Val 240
Lys	Thr	Tyr	Tyr	Gln 245	Tyr	Thr	Pro	Val	Ser 250	Ser	Lys	Ala	Met	Tyr 255	Asp
Ala	Tyr	Trp	Asn 260	Gly	Lys	Phe	Arg	Asp 265	Cys	Ala	Phe	His	Ser 270	Gly	Phe
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Gly 305	Gly	Ser	Glu	Gly	Gly 310	Gly	Ser	Glu	Gly	Gly 315	Gly	Ser	Glu	Gly	Gly 320
_			-	325	_				330					Asp 335	
Asp	Tyr	Glu	Lys 340	Met	Ala	Asn	Ala	Asn 345	Lys	Gly	Alā	Met	Thr 350	Glu	Asn
Ala	Asp	Glu 355	Asn	Ala	Leu	Gln	3er 360	Asp	Ala	Lys	Gly	Lys 365	Leu	Asp	Ser
Val	Ala 370	Thr	Asp	Tyr	Gly	Ala 375	Ala	Ile	Asp	Gly	Phe 380	Ile	Gly	Asp	Val
Ser 385	Gly	Leu	Ala	Asn	Gly 390	Asn	Gly	Ala	Thr	Gly 395	Asp	Phe	Ala	Gly	Ser 400
Asn	Ser	Gln	Met	Ala 405	Gln	Val	Gly	Asp	Gly 410	Asp	Asn	Ser	Pro	Leu 415	Met

Asn Asn Phe Arg Gln Tyr Leu Pro Ser Leu Pro Gln Ser Val Glu Cys 420 425 430

Arg Pro Phe Val Phe Ser Ala Gly Lys Pro Tyr Glu Phe Ser Ile Asp 435 440 445

Cys Asp Lys Ile Asn Leu Phe Arg Gly Val Phe Ala Phe Leu Leu Tyr 450 460

Val Ala Thr Phe Met Tyr Val Phe Ser Thr Phe Ala Asn Ile Leu Arg 465 470 480

Asn Lys Glu Ser

<210> 273

<211> 131

<212> PRT

<213> Artificial

<220>

<223> synthetic, amino acid Seq 2

<400> 273

Met Lys Lys Ser Leu Val Leu Lys Ala Ser Val Ala Val Ala Thr Leu 1 5 10 15

Val Pro Met Leu Ser Phe Ala Arg Pro Asp Phe Cys Leu Glu Pro Pro 20 25 30

Tyr Thr Gly Pro Cys Lys Ala Arg Ile Ile Arg Tyr Phe Tyr Asn Ala 35 40 45

Lys Ala Gly Leu Cys Gln Thr Phe Val Tyr Gly Gly Cys Arg Ala Lys 50 55 60

Arg Asn Asn Phe Lys Ser Ala Glu Asp Cys Met Arg Thr Cys Gly Gly 65 70 75 80

Ala Ala Glu Gly Asp Asp Pro Ala Lys Ala Ala Phe Asn Ser Leu Gln 35 90 95

Ala Ser Ala Thr Glu Tyr Ile Gly Tyr Ala Trp Ala Met Val Val Val 100 105

Ile Val Gly Ala Thr Ile Gly Ile Lys Leu Phe Lys Lys Phe Thr Ser

Lys Ala Ser

130

<210> 274 <211> 23 <212> PRT <213> Artificial

<220>

<223> Fig. 15, residues 20-42 of scorpion toxin

<400> 274

Gly Glu Asn Glu Gly Cys Asp Thr Glu Gly Lys Ala Lys Asn Gly Gly

Gly Ser Tyr Gly Tyr Cys Tyr 20